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CONTENTS OF VOLUME III

On the
Interests of Heirs of Entail
and the
Calculation of the Pecuniary Values

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Part I. was composed by MR. COCKBURN, *and Part II. by* MR. COCKBURN *and* MR. MURRIE, *and they were read before the Actuarial Society of Edinburgh on* 11*th December* 1884 *and* 9*th February* 1888 *respectively.*

On the Interests of Heirs of Entail, and the Calculation of the Pecuniary Values.

PART I.

The Entail Acts in relation to the Pecuniary Interests.

On account of the facility afforded by recent Acts of Parliament to the proprietors of Entailed Estates for disentailing, we trust that a paper dealing with the provisions of the Entail Acts which require actuarial calculations for giving effect to them, forms a suitable subject to be brought under the notice of this Society, any of whose members may be called upon to estimate the value of the pecuniary interests of the various heirs of entail. In treating the subject we beg leave to draw your attention briefly to the most important Statutes relating to Disentail, and to one or two decisions of the Courts on points affecting the actuarial calculations of the pecuniary interests of the heirs of entail. Before doing so, however, we might shortly refer to the origin of entails in this country. An entail is a deed by which the succession to heritable property is settled on a series of individuals or heirs of entail, who may be different from the ordinary legal heirs. More generally speaking, an entail or tailzie comprehends every deed by which the legal course of succession is altered and an arbitrary one substituted. Deeds of this nature have been known in most civilised nations, and their origin is doubtless due to the desire natural to man, to perpetuate his name and family in connection with his possessions, fostered by the State, for political ends which were specially suited to a bygone age. In Greece, Rome, and also in France, deeds of entail, restricting the line of succession to a special series of heirs, have existed from a very remote period, and in Great Britain they date from the time, at least, of Alfred the Great, in whose reign the first Statute relating thereto was passed. In Scotland—and that country alone is specially dealt with in the present paper—the Statute 1685, c. 22, is the basis of our Law of Entail, and its provisions regulated the mode

of constituting strict Entails by deed of conveyance containing prohibitory, irritant, and resolutive clauses duly recorded in the Register of Entails. That Act declared that it should be lawful to his Majesty's subjects to tailzie their lands and estates, and to substitute heirs in their tailzies with such provisions and conditions as they should think fit, and to affect the said tailzies with irritant and resolutive clauses, whereby it should not be lawful for the heirs of tailzie to sell or dispone the said lands, contract debt, etc., or do any other deed whereby the same might be evicted from the other substitutes in tailzie, or the succession frustrated or interrupted. These clauses, sufficiently expressed, were made essential to the validity of the entail. The deed of entail required to be registered in the Register of Entails, and it was thus made accessible to all interested at any time. The law of entail in modern times having been found to be attended with serious evils, various Acts of Parliament have been passed with a view to remedy these, such as the Acts of 1848, 1853, 1868, 1875, 1878, and 1882.

Apart from these Acts, lands will be disentailed—

1. By prescriptive possession upon an adverse or fee-simple title. If any heir possess under a different title for the prescriptive period, the entail will cease by prescription.

2. By the failure of the last existing heir of tailzie entitled to take under the deed of entail, that is, when the estate devolves upon the last person called under the deed as an heir of entail.

3. By the succession of heirs-portioners—that is, when at any time before the destination is exhausted the succession opens to two or more female heirs.

Let us now consider the effect of the disentailing Statutes.

On first approaching this subject we thought it would be unnecessary to go over the whole of these Acts, and that we would only require to deal with the law as it now stands; but on reflection we came to the conclusion that a better idea would be obtained of the law, and a better understanding of Actuarial Reports on any disentail effected by means thereof, if each of the various Acts were briefly referred to.

The first and most important Act, authorising heirs in possession to disentail their estates, is the Act of 1848, commonly known as the **Rutherfurd Act**. It proceeds on the following preamble, viz.: "Whereas the law of entail in Scotland has been found to be attended with serious evils, both to the heirs of entail and to the community at large, it is expedient that the same be amended," and it confers on heirs of entail important powers and privileges which we shall now advert to. Under certain conditions the heir of entail may exercise the power to disentail, and the Act con-

templates and provides for several situations in which, under the said conditions, this power may be exercised, according as the deed of entail has been executed, and the heir of entail has been born, at a particular date or relative dates. Entails by this Act were divided into two classes:—

First, Entails dated before 1st August 1848, commonly called Old Entails.

The heir in possession under an old entail could disentail—

1. If born after 1st August 1848, and being of full age without any consents.

2. If born before 1st August 1848, with consent of the heir next in succession, being his heir-apparent, provided that the consenting heir be capax, born after 1st August 1848, and twenty-five years old (reduced by the 1875 Act to twenty-one years).

3. Irrespective of the date of his birth:—

(*a*) If he is the only heir in existence, and unmarried. (The condition as to his being unmarried was repealed by the 1875 Act.)

(*b*) Or if he had obtained the consents of the whole heirs, if less than three in existence at the date of their consents, and at the date of presenting the application.

(*c*) Or if he had obtained the consents of the three nearest heirs at the said dates entitled to succeed in their order successively immediately after the heir in possession.

(*d*) Or if he had obtained the consents of the heir-apparent under the entail, and the heir or heirs, not less than two, including such heir-apparent who in order successively would be heir-apparent.

It is provided by the Act in all the foregoing cases that the nearest heir consenting should be twenty-five years old (reduced to twenty-one by the 1875 Act), and not subject to any legal incapacity. The phrase heir-apparent, as used in the Entail Statutes, means the heir whose right of succession can only be defeated by his death before the heir in possession.

Second, Entails dated on or after 1st August 1848, commonly called New Entails.

The heir in possession under a new entail could disentail—

1. If born after the date of the entail, and of full age, without any consents.

2. If born before the date of the entail, with the consent of the heir next in succession, being heir-apparent, provided that the consenting heir be capax, born after the date of the entail, and twenty-five years old. (The age of the necessary consenting heir was reduced by the 1875 Act to twenty-one years.)

These were the conditions, so far as they affect the pecuniary interests of the heirs of entail, upon which an estate could be disentailed under the Act of 1848. The **Acts of 1853** and **1868** did not materially affect these interests—the former providing, however, in the case of a disentail, that the instrument of disentail might be executed before presenting the application to the Court—and the latter, that of 1868, dealing with provisions for children of the heir-apparent, to which we shall afterwards refer. The **Act of 1875** made, however, a few important alterations which deserve to be noticed. They are—

1. The nearest heir of entail may consent when twenty-one years of age, instead of twenty-five years of age as formerly.

2. In any application for authority to disentail lands held under an old entail, the consent of any of the heirs whose concurrence was required by the Act of 1848 might be competently given after the application had been presented. In the event (and this is most important) of any of the foresaid heirs, except the nearest heir for the time, declining to give, or being legally incapable of giving, his consent, the Court may dispense with such consent in terms of the following provisions:—

(*a*) When any of the foresaid heirs, other than the nearest heir for the time, declines to give, or is legally incapable of giving, his consent, the Court shall on the petitioner's application, and after intimation to the heir or heirs so declining, *ascertain the value in money of the expectancy or interest* in the entailed estate, with reference to such application of such heir or heirs declining or incapacitated as aforesaid.

(*b*) Upon such value in money being paid into bank or secured on the estate, to the satisfaction of the Court, the Court shall dispense with the consent or consents of the heir or heirs, the value of whose expectancy or interest has been ascertained as aforesaid, and shall thereupon proceed as if such consent or consents had been obtained, provided always that nothing therein contained shall render it competent to dispense with the consent of the nearest heir for the time entitled to succeed to any entailed estate sought to be disentailed.

3. The restriction in section 3 of Act 1848, that the heir of entail in possession, being the only heir of entail in existence for the time, should be unmarried when he exercises the powers conferred upon him by the section of that Act, is by this Act repealed, but this Act shall not in any way affect the provisions of section 8 of the Act of 1848. These

provisions were that if an heir under an old entail had secured by obligation in any marriage contract the descent of the estate upon the issue of the marriage, it should not be competent to the heir in possession to disentail until there should be born a child of such marriage, capable by himself or his guardian of consenting to the disentail, or until such marriage should be dissolved without such child being born, unless the trustees named in the contract shall consent to the disentail.

We shall now proceed to consider what alterations—and they were many and important—the **Act of 1882** made upon the law of entail and the powers it conferred on the heirs in possession in connection with the disentail of their estates. The Act provided—

(1) That it should be lawful for an heir of entail in possession of an entailed estate held under an entail dated on or after 1st August 1848, to disentail the estate and acquire it in fee-simple, by applying to the Court in the manner provided by the Entail Acts, if he should be the only heir of entail in existence, or if he should obtain the like consents as are required by the Act of 1848, in the case of entails dated prior to the said date—that is to say, that heirs under new entails should have now the same powers as were given by the Act of 1848 to heirs under old entails.

(2) In any application under the Entail Acts to which the consent of the heir-apparent or other nearest heir was required, and such heir or the curator *ad litem* appointed to him in terms of this Act should refuse or fail to give his consent, the Court should ascertain the value in money of the expectancy or interest in the entailed estate of such heir, with reference to such application (the application may be other than to disentail), and should direct the sum so ascertained to be paid into bank in the name of the said heir, or that proper security therefor should be given over the estate, and should thereafter dispense with the consent of the said heir, and should proceed as if such consent had been obtained, and the provisions as to valuing the interests of the remoter heirs (sect. 5 and 6 Entail Amendment (Scotland) Act 1875) should apply to the nearest as well as to other heirs, and should apply to new as well as to old entails.

(3) With regard to settlements by marriage contracts, this Act (1882), sect. 17, which, making no distinction between old and new entails, repeats the enactment in the 8th section of the Act of 1848 above mentioned, with this difference, that in this Act we have the words "entered into prior to the passing of this Act," which would seem to imply that a marriage

settlement made after the passing of this Act would be no barrier to a disentail.

Certain powers are by the Act of 1882 conferred on creditors of heirs of entail in possession, enabling them to exercise the power of disentailing, which do not fall far short of those conferred on heirs in possession themselves, which it is not necessary for our purpose to enter upon.

We have been speaking of disentails, but there is another subject akin to it, actuarially of much importance, namely, the powers of heirs of entail to grant provisions to wives or husbands, and younger children, which we shall now notice. We use the words "younger children" for convenience—the expression used in the Acts is "children who shall not succeed to the entailed estate."

The first Act relating to this matter, and, indeed, the only one (with the exception of the 1868 Act, which confers somewhat similar powers on the heir-apparent), was that of 1824, commonly called the **Aberdeen Act.** The subsequent Acts, in so far as they deal with the matter, provide only for cases where there had been special provisions secured by marriage settlements. Although not at first applicable to all entails, the Aberdeen Act was subsequently declared to be so by the Act of 1868, excepting in cases where the operation of the 1824 Act is specially excluded by the deed of entail. The preamble of this Act bears: "And whereas sundry entails of lands and estates in Scotland contain no powers in regard to the granting of provisions for wives and husbands and children of the proprietors thereof, and in many other entails by reason of the change in the value of money, the improved value of lands and estates in Scotland, and other causes, the powers of granting provisions to the wives, husbands, and children of the proprietors of such estates, have been entirely inadequate for these purposes." The Act provided:—

> 1. That it shall be lawful to every heir of entail in possession of an entailed estate, under an entail already made or hereinafter to be made, in Scotland, under the limitations and conditions after mentioned, to provide and infeft his wife in a liferent provision out of his entailed lands and estates by way of annuity, provided always that such annuity should not exceed *one-third* part of the free yearly rent of the said lands and estates where the same should be let, or of the free yearly value thereof where unlet, after deducting public burdens, liferent provisions, and the yearly interest of debts and provisions, including the interest of provisions to children, and the yearly amount of other burdens of what nature soever affecting the said lands and estates, or the yearly rents or proceeds thereof, and diminish-

ing the clear yearly rent or value thereof to such heir of entail in possession, all as the same might happen to be at the death of the granter.

2. That it should be lawful for any heir-female in possession of an entailed estate to provide an annuity to her husband to the extent of *one-half* of the free yearly value of the lands as aforesaid, but if the lands were already burdened with a prior existing annuity to a wife or husband, the annuity to be granted to the husband should not exceed *one-third* part of the yearly rent.

Where there were two liferents to wives or husbands subsisting at any one time, it was not to be competent to grant a third annuity to take effect till an existing one shall fall in.

3. The provisions to children should be as follows:—

One child—One year's free rent.

Two children—Two years' free rent.

Three or more children—Three years' free rent.

Such provisions to be valid and effectual only to such child or children as should be alive at the death of the granter, except in the case of a special settlement by marriage contract. The provision granted to the child succeeding to the estate, in so far as not previously paid, should be extinguished. When provisions have been granted to children to the full extent, no further provision could be granted till and so far as the existing provisions were diminished either by the death of the child or payment of the amount.

Where the provisions granted to a wife or husband, or to a child or children, under the authority of this Act, were in excess of the proportions which have just been mentioned, the Court had power, on the petition of any of the heirs of entail, to restrict the provisions to the extent provided in the Act. It is important to remember that the provisions of this Act may be excluded by the deed of entail in terms of section 8 of the 1868 Act. On the other hand, the Aberdeen Act expressly bears that it has no power to diminish the provision of the heir, provided such heir has not exceeded his power in virtue of the deed of entail, except that he must not deprive the succeeding heir of more than two-third parts of the free yearly rent. These are in the main the various provisions which heirs of entail are empowered to make for wives, husbands, and children.

We shall now, by way of illustration of the meaning and effect of the statutory provisions as bearing on the actuarial calculations dealt with in Part II. hereof, refer briefly to the decisions of the Court of Session and the House of Lords in two cases where the value of the interests of the heirs, and the principles by which the same are to be calculated and ascertained, have been the subjects of litigation.

The first case in point of time was **De Virte v. Wilson,** 19th December 1877. The questions raised were (1) the manner in which the actuary had estimated the values of the consenting heirs, and (2) the division of the surplus which arose from the way in which these values had been ascertained.

The facts were:—

A, heir of entail and married, husband alive.

B, next heir in succession, unmarried, and disentail proceeds on the assumption that she is the heir presumptive.

C, next heir in succession after B, and unmarried.

D, next heir in succession after C, married and has a family.

In this case the principles were discussed upon which the valuation of the "expectancy or interest" (you will remember these are the words used in the Act of 1875) of the heir whose consent is dispensed with should proceed. The following are a few extracts from the note appended to the Judge's interlocutor on this point. The actuary ascertained the values of the "life interest" of the heir in possession and the three next heirs. These values were calculated on the footing that their respective rights were equivalent to the possession of, and succession to, an annuity of the same amount as the rents of the estate. The sum thus brought out was deducted from the fee-simple value of the estate, and after allowing for burdens, etc., the remainder or surplus is divided in different proportions among the three next heirs. A large part of the surplus is assigned to the next heir, B, because she could acquire the estate in fee-simple by executing a deed of disentail, and because the estate may fall to her own issue. No share of the surplus is given to the second heir, C, because she is unmarried, and there is no possibility of issue; and the balance of the surplus is assigned to the third heir who has children. The reason given for this latter apportionment is that she represents her son or other descendant not called to disentail. The Judge remarked that he considered it should have been the expectancy or interest, and not the "consent" which should have been valued. Before the Act of 1875 the consent might be legitimately valued, as it could have been withheld at the pleasure of an heir, but that Act must be held to have made an important change, when it enacted that the consent of the second or third heirs is not necessary, provided they are paid the value of their "expectancy or interest." This expression he conceived to mean merely, their own individual expectancy or interest, or, in other words, the value of their own chance of succession. The interest of all the heirs after the third is cut off and cannot, it was thought, be protected or taken into account in fixing the expectancy or interest of those heirs, who, for the purpose of disentailing, are alone recognised by the Statute. By recognising the children of the third heir, the interest of a fourth

heir was practically taken into account. He was of opinion that the interest of the heir in possession was not equivalent to a mere annuity, and that the surplus should not belong to the next three heirs. If there was a surplus it should belong to the heir in possession. For, as he goes on to point out, the heir in possession was not merely a liferenter but proprietor, though subject to fetters, and when, by following the statutory conditions, he got rid of the fetters he became the proprietor in fee-simple, and must as a necessary consequence obtain all the advantage arising from the change, under deduction of these payments which he had made in order to effect it. It is to be observed that two very important points are determined here—namely, (1) that it is the "expectancy or interest" of the next heirs which is to be valued, and not their "consent," and further, that the interest of all heirs after the third cannot be taken into account as affecting the interests of the heirs disentailing. And (2) that as the interest of the heir in possession is not to be measured by his life rental, chance of having heirs of his body, power to grant provisions, etc., as was formerly the case, but as the owner of the whole value of the estate, less the value of the interests of the heirs whose consents are dispensed with, therefore the surplus, when there is one, should belong to him, and should not be divided rateably among the subsequent heirs called to disentail.

The second case, and in some respects the more important one, is that of *M'Donald* v. *M'Donalds* commonly called the **Dalchosnie** Disentail case, 16th January 1879.

The facts were:—

A (male), heir of entail in possession and unmarried.
B (male), next heir in succession after A, married, no children.
C (female), next heir in succession after B, unmarried.
D (female), next heir in succession after C, unmarried.
The only other heir in existence was E (female), unmarried.

As this case has already been fully reviewed in the *Journal of the Institute of Actuaries*, vol. xxiii., it will perhaps be sufficient, without entering into details, to allude only to those points which demand special notice. One of the most interesting points decided may be explained as follows. We quote the words of the Journal:—"C and D had reversionary interests in an entailed estate on the death of A and B without male issue, and A was entitled to have the estate disentailed on paying to C and D the calculated values of their interests. The latter alleged that B had serious illnesses which reduced his expectation of life greatly below the average, and the value of their reversionary interests was in consequence greatly increased. They maintained accordingly that regard should be had to these circumstances in calculating the value of their

interests. On the contrary, A maintained that the state of the health of B was not to be taken into account, but that he must be assumed to be an average life, with the expectation of life corresponding to his real age. On this point the opinion of the Judges was much divided. Lord Adam, before whom the question first came, was of opinion that the state of the health should be taken into account, and this view was acquiesced in by a majority of the Judges of the Inner House, on the assumption that B would consent to a medical examination. It turned out, however, that B would not so consent, and the Judges of the Inner House then decided that the calculations should be made on the assumption that he was an average life. This decision was reversed on appeal to the House of Lords, which decided that B's health should be taken into account, but that it was for C and D to substantiate their allegation that the expectation of life was below the average; in other words, that in the absence of any allegation and proof to the contrary, B must be considered an average life for his age, and that the *onus* of proving that he was not so lay on C and D."

Another important point decided was as follows:—The actuary's report was objected to "in respect that the actuary had estimated the value of the chance of the second and third heirs acquiring the fee-simple of the estate by surviving all the other heirs of entail, and has thereby valued their interests as expectant fee-simple interests, instead of confining the inquiry to the value of their expectant interests as heirs of entail. It is upon this principle the actuary has allowed to these heirs for this 'chance' a resulting value more than double what on a proper interpretation of the Entail Statutes, and in particular of the Entail Amendment Act, 1875, sect. 5, the said heirs are entitled to, as the value in money of the expectancy or interest in the entailed estate of such heirs; and (2) in respect that the actuary, by estimating the value of the expectancy of the fourth heir, and taking her existence, age, and probability of issue into account, has introduced a fourth heir into the calculations, contrary to the true intent and meaning of the Entail Acts."

The Lord Justice-Clerk said he had the greatest difficulty in deciding as to this latter objection, but he came to the conclusion that to take into account the chance of the fourth heir was not a legitimate element in the inquiry, and that the heir in possession is only bound to satisfy the interests of the limited number of the heirs-substitute in regard to the succession under the entail prescribed by the Act.

Lord Ormidale, in commenting on the fact that the actuary has valued the chance of the second and third heirs acquiring the fee-simple, said that he was unable to resist the conclusion that the chances or probabilities of the second and third heirs coming to be

fee-simple proprietors of the estate did not form legitimate elements in valuing their interests in the entailed estates. It must be borne in mind that it was not the value of the heirs' *consent* to the disentail, but the value of their expectancy or interests as heirs of entail, which fell, in terms of the Statute, to be valued or estimated.

Lord Gifford said he had come to be of opinion that the interest to be valued was the interest in the entailed estate, and not the interest in a possible fee-simple estate, which could only emerge after the entail had expired and come to an end. The possibility that the entail might expire while the estate was in the possession of one or other of the ladies, was not a right under the entail, but a right at common law, which would only arise when there was no entail in existence. The Statute did not intend that the chances of the entail failing altogether, and the value of a *spes successionis* at common law, should be estimated. The thing which was to be valued was the "expectancy or interest in the entailed estate," not the expectancy of getting a fee-simple estate as the heir *alioqui successurus* at common law. The chance of being heir at common law the ladies would still have, notwithstanding the disentail, only that right would be defeasible as a fee-simple succession, and Lord Gifford was inclined to think that this was what the Statute intended. To give the heirs more than the value of the entailed succession would be to give them the value of a common law, *spes successionis*, which they had not as heirs of entail, but as heirs-at-law of the granter. The petitioner was the absolute proprietor of the estate, subject only to the deed of entail. He was not, as had sometimes been contended, a mere liferenter of the estate with certain powers, or one of a series of liferenters; on the contrary, he was the fiar of the estate—strictly and properly fiar—subject only to the disabilities created by the entail. Accordingly when the law gave him the power of disentailing, it simply enabled him to enlarge his radical right of fee by removing the disabilities, and the whole benefit of the enlargement accrued to him and not to the consenting heirs. They only got the value of their entailed interest. It was on this principle that De Virte's case was decided, and this decision altered what it appeared was the practice or understanding of actuaries previous to its date. The actuarial view was, that after deducting the life interest of the heir in possession, and the life interests and the values of the powers of the consenting heirs, the surplus value, as it was called, should be divided rateably among the heir in possession and the consenting heirs, but this view was negatived. The whole surplus went, not to the heirs rateably, but solely to the heir in possession, and the heirs whose interests were to be valued only got the value of their interests and no more. The whole value of the estate went to the heir in posses-

sion, subject only to deduction of the value of the interests of the first, second, and third heirs of entail. In this case there was a fourth heir; but under the Statute she was to get nothing, and it was not right to take her into account at all to enhance the shares of the second and third heirs. He thought the Statute meant to draw the line at the end of the three next heirs, and to exclude more distant heirs altogether, either as to their chance of liferent or fee.

The Court sustained both objections, and the respondents appealed to the House of Lords, maintaining that regard should have been had to their contingent chances of succeeding to the fee-simple of the estate.

The Lord Chancellor was unable to concur in the view of the Court of Session, that in valuing the interests of the second and third heirs their interests should be treated as those of liferenters only, and that the possibility should not be taken into account that when the survivor of them came into possession, the fourth heir might be dead without issue. Supposing the Act of 1875 had not been passed, what would have been the interest which the appellants would have enjoyed in specie, supposing they had refused their consent to disentail. It cannot be doubted that what the surviving appellant would have enjoyed would have been an interest equal to a liferent or equal to a fee, just according as the fourth heir was or was not dead without issue at the time. This was the amount of the interest which could have been enjoyed in specie, and this, as it appeared to him (the Lord Chancellor), was the interest that must be valued.

Lord Hatherley, after reciting the provisions as to consents to disentail given by the Rutherfurd Act and the Act of 1875, remarked: "It appears to me probable that what the Legislature was aiming at was the entailed estate only as created by the deed of entail, and the interest now in question is an interest which is beyond the entail, and indeed after the interest in the estate tail has passed into the second or third heir, and is only arrested at the decease of the third heir by the fact of the next or fourth heir or her issue not being in existence to receive it, and that the interest which the third heir may acquire and dispose of by reason of the termination of the estate tail taking place immediately on the death of the fourth heir without issue, is the original fee-simple, which has been allowed to remain fettered, so as to carry it in its fettered state to the third heir in succession; but which has become free from the fetters after it reached the third heir, who founds her claim not as interested under the entail, but as the unfettered fiar of the estate from the failure of the entail. We have the singular result of an interest in the third heir which is to be valued under the 1875 Act, and which results from the failure not *of prior but* of subsequent limitations to the fourth heir which

would not be the subject of any compensation if vested in that heir herself." Lord Hatherley felt great difficulty in coming to such a conclusion. He felt the words of the Act, "expectancy or interest," very strong; and though he should, from the nature and purport of the two Acts of Parliament, be led to the conclusion that so extended a meaning ought not to be given to them, yet the words used would be sufficient to include all the interest in the estate coming to the third heir by the results of the entail and taken from her by the Act. He went on to say that "if I came to the other conclusion, I should have to do so upon a very forced construction, because although it is not the entail itself which causes the reversionary interest to fall into possession, still it is a consequence of the reversionary interest that estate tail cannot be barred, for the Court is not authorised to allow it to be barred, except upon the condition of having the whole 'interest or expectancy' of the person against whom they allow it to be barred valued, according to the position which he or she may occupy at the time, when the disentailing deed is proposed to be executed. I think this interest in the estate is part of the interest or expectancy in the entailed estate directed to be valued." Lord Blackburn, in connection with the second point, as to introducing a fourth heir into the calculation, remarked that the heir in possession of an entailed estate in Scotland was the fiar fettered as far as the provisions of the tailzie fetter him, and no more. If there was no one in existence who could force these fetters he had the absolute fee. From this it followed that if it could be ascertained that all the heirs in existence would die without issue, the last surviving of the existing heirs would have the fee. A person who was in a tontine had a calculable interest in his expectancy of being the last survivor. Ought the analogous expectancy of one of the three heirs of entail to be the last survivor to be valued in this case, where there were four existing heirs after the heir in possession? The actuary had in this case valued it, and found that it more than doubled the sum to be paid to the second and third heirs. On objection, the Lord Ordinary thought he had done right, but all three Judges of the Second Division were of a contrary opinion. Lord Blackburn had doubt and hesitation on this point, and if it rested solely with him he was not prepared to reverse their decision that this should not be valued. The Rutherfurd Act proceeded on the assumption that the interests of the fourth heir under the fetters of the entail were too remote to make it proper to consult him as to the propriety of disentailing. This interest of the second and third heirs, arising only after the fourth heir had died without issue, was still more remote. The words used in the amending Act of 1875 were not such as to make him believe that those who used them had the point present to their minds; but the object of the Act being to facilitate

the disentailing of estates, if the words used were such as to be capable of bearing the construction that the only thing to be valued was the expectancy under the fetters of the entail while they exist, and not the expectation of the fee that might arise after they had expired, we should put on the Act of 1875 that construction which would forward the object of the Act. Lord Blackburn was not prepared, however, to dissent from what he understood to be the opinions of both the noble Lords who heard the argument, that the words of the Act were not such as to be capable of bearing that construction. The following Order was thereafter accordingly pronounced: "That it be referred to the Court of Session in Scotland to ascertain anew the value in money, as at the date of the instrument of disentail, of the expectancy or interest of the appellants in the estates, within the meaning of the Entail Amendment (Scotland) Act 1875." At this stage of the litigation the parties came to terms, and the claim was compromised by the heir in possession paying to the second and third heirs a sum somewhat less than the value of their life-interests and expectancy to the fee-simple, the deduction from the full sum being the estimated expenses of the litigation.

These are the only two cases which we think it necessary to bring under your notice, but as there are some rather important points in the latter case, which we do not allude to, we commend the whole matter as you will find it reported in the Journal referred to, and especially the opinions of the Judges in both Houses, to your careful study.

It would appear therefore that in calculating the value of the interests of these heirs of entail whose consents are required in disentailing, the following leading elements are to be taken into account in the calculation, namely—

(1) The rental and the value of the estate, and the burdens affecting it.

(2) The ages of the heir in possession, and of the necessary consenting heirs.

(3) The state of their health; if under average, the burden of proving it to be so lying upon him who makes the allegation.

(4) Whether they are married, and the ages of their wives, and the probability of issue.

(5) The powers of the heir in possession, and the consenting heirs, to grant provisions to wives, husbands, and children.

By all or any of these circumstances it is evident that the value of an estate to an expectant heir may be affected, but as his consent may be dispensed with if refused, no value is now to be put on his consent as a voluntary act. The values of the interests of the expectant heirs being calculated on the basis above mentioned, the rest of the estate belongs wholly to the heir in possession.

PART II.

The Calculation of the Values of the Pecuniary Interests.

WE now proceed to show how the values of the various interests may be calculated; but, before doing so, it is desirable that we should shortly refer to the leading principles on which these interests are to be valued, which, as stated, have been laid down by the Court.

In the first of the cases referred to—*De Virte* v. *Wilson*—it was held that it is the expectancy or interest of the substitute heirs which should be valued, and not their consent; for consent, if refused, will be dispensed with, and the Court will order the value in money of the expectancies or interests to be ascertained, and the amount paid into bank on deposit in the name of such heirs. This case also decided that the interest of the heir in possession is not to be measured by his liferent, chance of having heirs of his body, power to grant provisions, etc., as formerly, but as the whole value of the estate, less the value of the interests of the heirs to whom compensation has to be paid.

In the second case, the *Dalchosnie* Disentail case, it was decided that all the heirs are to be assumed to be of average health, the *onus* of proving them not to be so lying with the parties who make the allegation. Also, that the existence of an heir not called to the disentail is to be taken into account, if thereby the interests of the preceding heirs are affected; but that, as such heir is not called to the disentail, no value is to be assigned to him.

Bearing these important decisions in mind, let us proceed to explain the calculations of the interests themselves. The elements required to be taken into account are as follows:—

(1) The rate of interest.
(2) The table of mortality.
(3) The tables of probability of marriage and issue.
(4) The provisions allowed by the Aberdeen Act, or deed of entail, to wives, husbands, and children.
(5) Improvement debts on the estate.

(1) With regard to the **Rate of Interest** to be employed in the calculations, we find Mr. W. T. Thomson, in his well-known

book *On the Pecuniary Interests of Heirs of Entail*, stating that, while he "does not wish to advance an opinion as to the value of land, present or future," he "has little hesitation in recommending the adoption of four per cent. in ordinary cases as an equitable foundation in the first instance for all calculations connected with disentail"; but he modifies this assumption by the subsequent statement, that "if complete accordance between the value of the property and of the heirs' interest therein is wished, a calculation could be made according to the rate of interest which the price of the estate affords in perpetuity." It may perhaps be considered a matter of opinion which of these two principles is the correct one, but we incline to the latter, and we believe that it is the one generally adopted. In order to employ it, it is necessary that the actuary should have particulars furnished to him of the fee-simple value, and of the net rental, of the estate. The net rental is generally ascertained without difficulty, and the fee-simple value is a matter for agreement between the heir in possession and the heirs to whom he has to pay compensation; or, in default of agreement, the Court will, on the presentation of the petition for disentail, make a remit to a valuer to ascertain the value of the estate.

Even in a matter so comparatively simple as the fixing of the rate of interest to be employed in the calculations, the actuary will frequently meet with complicated points that will require careful consideration. He must not, for instance, lose sight of the fact that the heir in possession has power, without consulting the subsequent heirs, to sell the entailed estate under direction of the Court, and thereafter have the price invested in consols or other securities specified in the Act of 1882. The effect of this may be illustrated by an example.

Suppose (1) it is proposed to disentail a certain estate, of which the net rental is, say, £2500. The estate is valued for the purpose of the disentail calculations, and the valuer reports that, on account of certain amenities, or perhaps from the fact of its possessing valuable sporting capabilities not productive of rental at the time, its value is £100,000 (forty years' purchase). One of the heirs—say B—to whom compensation has to be paid, would, if he succeeded to the estate, be entitled to disentail without paying compensation to any one. If we followed our general rule, we should value B's interest at $2\frac{1}{2}$ per cent., being the rate of interest yielded by the net rental on the capital value of the estate. It may, however, be fairly contended by the heir in possession, that, as he has power to sell the estate and have the price invested (as prescribed by the Act), the calculations should be made at, say, $2\frac{3}{4}$ per cent., or even a higher rate of interest, the effect of which would be to make the value of B's interest smaller than if a $2\frac{1}{2}$ per cent. rate

had been used. The difference in the rates of interest employed would have been of less importance if B's interest had been a liferent reversionary interest only, in which case, if the calculations are made at $2\frac{3}{4}$ per cent., the income must be taken as £2750.[1] We may now consider the converse of the first case.

Suppose (2) that an estate produces £5500 a year, and is valued for the purposes of the disentail at the low amount of £100,000. The rate of interest shown here is $5\frac{1}{2}$ per cent., an abnormally high rate, and doubt may arise whether it is the correct rate to use in the calculations. On considering the matter, however, we shall probably find that the reason why the valuation is so low is because the income is supposed to be of a precarious nature. It may, for example, be made up largely of sporting or mining rents. If, then, the heir to be compensated has simply a reversionary liferent in the estate, it seems equitable that his expectancy should be discounted at a high rate of interest, bearing in mind the possibility of a reduction of the rental before he comes into possession. If, on the other hand, we are dealing with the interest of an heir who would succeed to the fee-simple, it seems equitable that his expectancy also should be discounted at a high rate, because, if the income has suffered diminution before he succeeds, the capital value of the estate will no doubt be similarly affected.

We shall now consider two cases which illustrate a different aspect of the question.

Suppose (3) an estate valued at £100,000 produces a net rental of £3500, and it is desired by the heir in possession to borrow upon it a sum of £50,000 (out of which he is to pay compensation to the subsequent heirs in respect of the sum borrowed). It seems evident in this case that the rate of interest to be adopted is not the rate yielded by the estate, but the rate which is to be paid on the loan of £50,000—say $3\frac{3}{4}$ per cent. In fact, we must look upon the property to be disentailed as £50,000, producing an income of £1875 a year, because these sums are the capital and income respectively of which the substitute heirs are deprived.

It may be observed in passing that, in a case of this kind, the compensation to be paid must be calculated on the whole sum to be charged on the estate, and not on the portion of the loan taken by the heir in possession. Thus, if the heir in possession wishes to borrow such a sum as will give him £50,000 in addition to the compensation he has to pay, such compensation, which we may call *S*, must be calculated, *not* on £50,000, but on £50,000 *plus S*.

[1] Since the above was written we have been informed that there was a case in the Outer House in which the Lord Ordinary decided against this view, though it is difficult to see on what grounds the decision was arrived at. It would seem, therefore, that the heir in possession in such circumstances may consider whether it would not be more advantageous first of all to obtain the consent of the Court to a sale of the estate and an investment of the price, and thereafter proceed with the disentail.

Suppose (4) that the heir in possession in case (3), after borrowing £50,000, should desire to disentail the estate entirely. We have the capital value of the estate £100,000, net rental £3500, and deducting from these respectively the debt of £50,000, and the annual interest upon it, £1875, there remains the capital value of £50,000 and the net rental of £1625. A little consideration shows that, theoretically, we ought first to calculate at 3½ per cent. the value of the interest of each subsequent heir in the whole estate, and then deduct from such value the value calculated at 3¾ per cent., of the subsequent heir's interest in the debt. For, suppose the extreme case of a disentail taking place immediately after the £50,000 has been borrowed: If the estate had been disentailed before being burdened, the interests would have been valued at 3½ per cent., but, as compensation has already been paid at 3¾ per cent. on the amount of the debt, the compensation now to be paid should be the difference between these two. It will generally, however, be found to be sufficiently accurate to base the calculations on the net value of the estate, and the net income after deducting debt and annual interest; that is—

Capital value, ...	£50,000
Income, ...	£1625
Rate of Interest, ...	3¼ per cent.

(2) **The Table of Mortality.**—The table almost invariably used is the well-known "Carlisle," mainly, it is presumed, on account of the fact that it is a very satisfactory exponent of the rate of mortality found to prevail among unselected lives. The following tables may also be employed, and may be considered preferable, as they are based upon observations of a class of lives similarly circumstanced to the majority of persons dealt with in disentail calculations:—

"Peerage Males."—*J.I.A.* vol. xxi. 432.
"Peerage Married Men."—*J.I.A.* vol. xxviii. 377.
"Peerage Females."—*J.I.A.* vol. xxviii. 378.

(3) **Tables of Probability of Marriage and of Issue.**—The estimating of these probabilities is more difficult than those of death and survivorship, the death of a man being a certain event, while the probability of his marriage, and of his having issue, are affected by various circumstances which are to a great extent under his own control. It has, however, been shown that a law of marriage and of issue does exist, and it has been clearly enough defined for ordinary practical purposes. The actuary has now been furnished with a very considerable collection of statistics (almost wholly drawn, however, from the experience of the British Peerage), and

valuable tables have been deduced therefrom, principally by Mr. Sprague and Mr. Day, which will be found in the Journal of the Institute of Actuaries. Further information on the subject will be found in the Actuarial Reports on the Widows' Funds of the Faculty of Advocates, Writers to the Signet, Clergymen of the Church of Scotland, Schoolmasters, etc. It is not necessary that we should review these statistics in detail, but we may say that, in Mr. Sprague's papers on the subject, the following will be found, which furnish the actuary with various probabilities constantly required in disentail calculations :—

1. The probability that a bachelor of a given age will marry and have issue.—*J.I.A.* vol. xxviii. 376, also vol. xxi. 436.

2. The probability of remarriage among widowers.—*J.I.A.* vol. xxviii. 361-375.

3. The probability that a marriage which has subsisted for a given number of years will hereafter become fruitful.—*J.I.A.* vols. xxii. 117, and xxv. 160.

4. The probability that a marriage will be fruitful.—*J.I.A.* vol. xxviii. 360.

And many other useful tables, too numerous to mention here.

(4) **The Provisions which the various Heirs are entitled to make for Wives, Husbands, and younger Children.**[1]—We will show here how the amount of these (not their value at the date of the disentail) are estimated, so as to prevent unduly complicating the calculation of the pure interests of the heirs themselves when these come to be dealt with. As the various provisions under the Aberdeen Act are fully discussed in Part I., we shall very briefly refer to them now. They are as follows :—

(1) To the widow, an annuity of one-third of the free rents after deducting public burdens, liferent provisions, and the yearly interest of debts and provisions or other burdens including the interest of provisions to children, all as the same may happen to be at the death of the granter.

(2) To the husband (where the estate is held by an heir female) an annuity of one-half of the free rents, but if the estate is already burdened with a prior existing annuity to a wife or husband, the annuity to be granted to the husband shall not exceed one-third of the free rents.

Where there are two liferents to wives or husbands subsisting at any one time, it is not competent to grant a third annuity to take effect till an existing one shall cease.

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[1] Compare pp. 8 and 9.

(3) The maximum provisions to younger children are as follows :—

One child—One year's free rent.
Two children—Two years' free rent.
Three or more children—Three years' free rent.

Such provisions to be valid and effectual only to such child or children as may be alive at the death of the granter, except in the case of a special settlement by marriage contract, where on the death of the child the provision does not lapse, but shall remain and be effectual as if such child had survived the granter of the provision. When provisions have been granted to children to the full extent, no further provision can be granted until those existing are diminished either by the death of the child or payment of the amount.

Where the provisions to wives, husbands, and children are in excess of the proportions of the free rent which have been stated, the Court have power, on petition, to restrict them to the values set forth in the Act. It is to be remembered, however, that the provisions authorised by this Act may be expressly excluded by the Deed of Entail (1868 Act, sect. 8). Where the heir of entail grants provisions in virtue of his power under the deed of entail, he must not deprive the succeeding heir of more than two-thirds of the free yearly rent.

It will be observed that the provisions for a widow (or husband) and younger children mutually depend on one another, so that in estimating the amount of the annuity to be granted to the widow (or husband) the interest upon the younger children's provisions must be taken into account, and similarly in estimating the children's provisions, the annuity to the widow (or husband) must be taken into account. This problem has been investigated in *J.I.A.* vol. xix. p. 41, and we cannot, we think, do better than repeat the solution which is there given :—

"Suppose that a proprietor has charged his estate in favour of his widow and younger children to the full extent allowed by the Act, what interest will they actually take? Assume the net rental of the estate to be 1, and let i be the rate of interest that is payable on the portions of the younger children. Let x be the annual income which the widow will take, then $1-x$ is the net income remaining after payment of this interest. The provisions for the younger children must not exceed three times this amount, and will therefore be $3(1-x)$. The annual interest upon these provisions is $3i(1-x)$, and the net rent after deducting the interest upon the younger children's provisions, but not of the widow's liferent, is $1-3i(1-x)$. The widow's liferent cannot exceed one-third of this sum, so that we get the equation

$$x=\frac{1-3i(1-x)}{3} \quad \therefore x=\frac{1-3i}{3(1-i)}$$

The provisions for the younger children $3(1-x)$ are therefore equal to

$$\frac{2}{1-i}\text{"}$$

The alterations to be made on the above formulas, when the annuity to a husband has to be calculated, or when the provisions are applicable to a less number of children than three, are so obvious that it is unnecessary to deduce the formulas.

(5) **Improvement Debt.**—This may be either a fixed debt, in which case it will be treated in the same way as any other bond upon the estate, or it may be repayable by a terminable annuity. In the latter case we have to bear in mind the provisions in the Act of 1882 whereby such loans can be constituted permanent burdens for three-fourths of their original amount. It may frequently be assumed (if the heir in possession be not a very old man) that the debts will be so constituted during the lifetime of the heir in possession.

We are now in a position to take up and discuss a few specimens of the calculations of the interests of the various heirs under an entail, but before doing so we wish it to be clearly understood that we disclaim any attempt to lay down fixed rules for making such calculations. It will be seen that it is only in the very simplest cases that this can be done, and the actuary must decide, in each particular case that comes before him, what methods of calculation should be used.

After due consideration, we have come to the conclusion that we cannot do better than select as illustrations the cases adopted by Mr. Thomson in his book *On the Pecuniary Interests of Heirs of Entail*, modifying and supplementing the data used by him where, on account of the subsequent alteration of the law of Entail, that seems desirable. We assume in all the cases that there are a number of heirs in existence subsequent to those mentioned, so that there is no chance of an heir whose interest is to be valued becoming the last heir in existence.

The following Table may be useful as indicating at a glance the number of heirs whose interests require to be valued under the various conditions which may exist at the date of disentail:—

This Table is intended to show the heirs to whom compensation has to be paid. The additions in square brackets show the alterations by the 1875 Act, and the red ink those of the 1882 Act

An Old Entail is one dated before 1*st August* 1848 ; *a New Entail one dated on or after* 1*st August* 1848.

OLD ENTAILS. 1. Heir in possession, 21, born on or after 1 Aug. 1848, without any consents.
2. Heir in possession, 21, born before 1 Aug. 1848, with consent of heir-apparent born on or after 1 Aug. 1848 and 25 [21].
3. Heir in possession, 21, { 1. If only existing heir and unmarried [although married].
2. With consent of (a) all existing heirs if less than three in existence
(b) three next
(c) heir-apparent, and heir or heirs in number not less than two, including such heir-apparent, who in order successively would be heir-apparent } provided that the first consenter is 25 [21] [consents subsequent to first may be valued and paid over] *first consent may be valued and paid over.*

NEW ENTAILS, 1. Heir in possession, 21, born after date of entail.
2. Heir in possession, 21, born before date of entail, with consent of heir-apparent born *after* and 25 [21].
3. *Heir in possession, 21,* { 1. *If only existing heir.*
2. *With consent of* (a) *all existing heirs if less than three*
(b) *three next*
(c) *heir-apparent, and heir or heirs in number not less than two, including such heir-apparent, who in order successively would be heir-apparent* } *provided first consenter is* 21 { *all consents may be valued and paid over.*

NOTE.—If first consenter be under 21, Curator may act for him (1882 Act, § 12).

Case I.

Power to Disentail on paying Compensation to One Heir.—From the Table it will be seen that under

(1) Old Entails, heir in possession aged 21, born before 1st August 1848, can disentail with consent of heir-apparent born on or after 1st August 1848, and 21 years of age (if the latter under 21, with consent of his *curator ad litem*);

(2) New Entails, heir in possession aged 21, born before date of entail, may disentail with consent of heir-apparent born after, and 21 years of age (if the latter under 21, with consent of his *curator ad litem*).

The heir-apparent must be the son, grandson, or other direct descendant of the heir in possession—in other words, must occupy such relation to the heir in possession that his hope of succession cannot be defeated by the birth of a child intervening.

Take the following examples, in which we shall assume that the entail is an old one:—

Case I.—Example A.

A, the heir in possession, is aged 55. He is married, his wife being aged 45, and he has several children (including B, mentioned below).

B, eldest son of A, and heir-apparent, aged 25 (born after 1st August 1848).

Value of estate, . . .		£50,000	Rental, .	£2000
Entailer's debt, .	£2000			
Improvement debt (permanent), .	2000			
		4,000	Int. at 4 %,	160
		£46,000		£1840
Children's provisions (created by former heir), ...		3,000	Int. at 4 %,	120
		£43,000		£1720

The net income yielded by the estate, £1720, being thus 4 per cent. on the capital value, £43,000, we make the calculations at that rate of interest.

Aberdeen Provisions for Widow and Younger Children of A.—If the heir in possession pays off the existing children's provisions of £3000, he would then (unless restrained by the deed of entail)

be able to burden the estate with the usual Aberdeen provisions. The net income (after the £3000 has been paid off) being £1840, the provisions will be:—

$$\text{For Widow,} \quad \frac{1-3i}{3-3i} \times £1840.$$

$$\text{For Children,} \quad \frac{2}{1-i} \times £1840.$$

It used to be customary to take i as equal to ·05, but this seems to us to be scarcely correct, as it assumes that 5 per cent. interest will have to be paid upon the children's provisions. It will be more correct to make i equal to say ·04, which assumes that 4 per cent. only will be paid. At this rate of interest it is found that the children's provisions amount to £3833, and the widow's annuity to £562. As there are existing children's provisions of £3000 on the estate, the heir in possession can only charge the estate with the balance, namely, £833.

If B should succeed to the estate, he would, having been born after 1st August 1848, be able to acquire it in fee-simple, without paying compensation to any subsequent heir, but subject to the provisions for A's widow and younger children.

B's interest is therefore

$\bar{A}^{1}_{55\cdot25} \times (43{,}000-833)$ = Value of reversion on death of A, if B survives, to the estate, less provisions for A's younger children

minus

$\ddot{a}^{1}_{55\cdot25|45} \times 562$ = Value of annuity to wife of A, aged 45, after death of A (55), if B (25) survives A

minus

the value of a similar annuity to a possible future wife of A.

It is, we think, not necessary to say anything as to the method of calculating the first two items, but we may show how the value of an annuity to a future wife of A may be approximately determined.

A's present wife, aged 45, may die in his lifetime, and it is necessary to allow for the chance of this and of his marrying again.

This can be readily done from the materials contained in Mr. Sprague's paper in *J.I.A.* xxviii. 350-392. The continuous formula for the general term is

$$(1 \div l_{45}\, l_{55}) \int v^n l_{45+n} \mu_{45+n} l_{55+n} dn (\Sigma w m_{[55+n]} \div w l_{[55+n]}).$$

If we multiply this general term by

$$\ddot{a}_{\overline{55+n}\cdot 25+n|x}$$

where x represents the probable age of the second wife that A would marry, if he married at age $55+n$, we shall get an approximation to the benefit we are in search of as good as can be attained by means of the data at present available. The probable age of the second wife may be arrived at by a study of Table 3 in Mr. Chatham's paper in *J.I.A.* xxvii. 42.

The value of B's interest calculated approximately by the above formulas is £17,056.

Case I.—Example B.

If the heir B, whose interest we have to calculate, should be under twenty-one years of age, we would require to allow him only a liferent interest in the estate till he attained twenty-one, because he is not entitled to disentail and acquire the fee-simple till he reaches that age. Suppose, for instance, in Example A, that B had been eleven years of age (instead of twenty-five), the formula for the calculation of his interest would have been :—

1. Annuity of the net rents after deducting interest on £833 children's provisions (say £1687 net) during the next 10 years to B (11) after death of A (55)

minus

2. Annuity of £562 to commence on the death of A (55) and to continue during the joint lives of B (11) and A's wife (45) but to cease at the end of 10 years from the present time

plus

3. Reversion of B (11) 10 years hence to the fee of the estate (£43,000), less children's provisions (£833), contingent on B being then alive and A (55) dead

minus

4. Annuity of £562, to commence 10 years hence, to A's wife, (45 + 10) if B (11) is alive and A (55) dead (B would have to pay this annuity if he acquired the estate on attaining 21)

plus

5. Reversion of B (to £43,000 − £833 as before) after the next 10 years if he and A both live so long, contingent on B surviving A

minus

6. Annuity to A's wife payable by B, if he acquires the estate, at any time after attaining 21, by surviving A.

The various functions above described may be expressed symbolically as follows :—

1. $|_{10}\ddot{a}_{55}|_{11} \times 1687$
   minus
2. $|_{10}\ddot{a}_{55}|_{11\cdot 45} \times 562$
   plus
3. $v^{10} \times (l_{21} \div l_{11})\{(l_{55} - l_{65}) \div l_{55}\}(43{,}000 - 833)$
   minus
4. $v^{10} \times (l_{21} \div l_{11})\{(l_{55} - l_{65}) \div l_{55}\}(l_{55} \div l_{45}) \times \ddot{a}_{55} \times 562$
   plus
5. $v^{10} \times (l_{21} \div l_{11})(l_{65} \div l_{55}) \times \overline{A}_{\substack{1 \\ 65\cdot 21}} \times 42{,}167$
   minus
6. $v^{10} \times (l_{21} \div l_{11})(l_{65} \div l_{55})(l_{55} \div l_{45}) \times \ddot{a}_{\substack{1 \\ 63\cdot 21\ 55}} \times 562$

To avoid complicating this case we have left out of account in the formulas the value of the provisions for a possible second wife of A.

Note.—It will be found in practice, however, that in many cases the difference between giving B the value of the fee contingent on his surviving the heir in possession and giving him only the rents until 21 and the fee thereafter, is inconsiderable.

In this case, the value of B's interest, if calculated approximately by the formulas given above, will be £17,548, while, if we assume that whenever he succeeds he will take the fee subject to Aberdeen provisions, the value comes out £18,141.

Case I.—Example C.

A, the heir in possession, is aged 60; married, his wife being aged 50; and he has a number of children, including B mentioned below.

B, eldest son of A, and heir-apparent to the estate; aged 30; born after 1st August 1848.

Value of estate, . .	£125,000	Rental, .	£5000
Deduct entailer's debt,	10,000	Interest 4 °/₀,	400
	£115,000		4600
Improvement debt, .	3,000	Interest 4 °/₀,	120
	£112,000		4480
Children's provisions (created by former heir), . . .	8,000	Interest 4 °/₀,	320
	£104,000		£4160

The widow of a former heir enjoys an annuity of £1200. She is aged 70.

Provisions for Widow and Younger Children of A.—The widow of A will be entitled to an annuity of £800 after A's death, to be increased, after the death of the £1200 annuitant, to £1200, and A has power to burden the estate with a provision of £4000 for his younger children in addition to the children's provisions of £8000 created by a former heir. The above provisions are greater than would be allowed in terms of the Aberdeen Act, and it is therefore to be presumed that they are authorised by the deed of entail.

As in Case I., Example A, the interest of B is his chance of succeeding to the fee-simple, subject to the annuity to the lady of seventy, and to the provisions in favour of A's widow and younger children; thus:—

1. Reversion on death of A (60), if B (30) survive him, to the estate, less provision of £4000 for A's younger children

minus

2. Value of an annuity of £1200 to the annuitant (70) after death of A (60) if B (30) survive A

minus

3. Value of an annuity of £800 to A's wife (50) after death of A (60) if B (30) survive A

minus

4. Value of further annuity of £400 to A's wife (50) after death of the survivor of A (60) and the annuitant (70) if B (30) survive A

minus

5. Value of an annuity to a possible future wife of A.

The symbolical expressions for the above functions are as follows:—

1. $\bar{A}_{\substack{1 \\ 60\cdot30}}$ (104,000—4000)

minus

2. $a^{1}_{60\cdot30|70} \times 1200$

minus

3. $a^{1}_{60\cdot30|50} \times 800$

minus

4. ($\delta_{\overline{60\cdot70}|50}$ provided 30 survive 60) × 400

minus

5. Value of annuity to future wife of A (see p. 26).

Omitting the fifth item, an approximate calculation of the value of B's interest comes to £46,571.

Case II.

Power to Disentail on paying Compensation to Two Heirs.—From the Table it will be seen that under both old and new

entails an heir in possession aged twenty-one, irrespective of the date of his birth, can disentail with the consent (*a*) of all existing heirs, if less than three in existence. (If there were only two in existence the case we are about to consider would apply.) Or (*b*) with the consent of the heir-apparent and heir or heirs, in number not less than two, including such heir-apparent who in order successively would be heir-apparent. (If the heir-apparent and his eldest son were the parties to the disentail, the case we are about to consider would apply.)

Take the following example in which we assume the entail to be a new one:—

A, heir in possession, is aged 80; his wife is aged 70; and he has five children alive.

B, his eldest son (heir-apparent), is aged 50, born before the date of entail; his wife is aged 40; and he has four sons alive.

C, grandson of A, and eldest son of B, is aged 20; born after the date of entail, and not married.

Value of estate, . .		£75,000	Clear rental,	£3000
Drainage debt, .	£1000			
Children's provisions (created by former heir), . .	8000			
	——	9,000	Int. at 4 °/₀,	360
		£66,000		£2640

Aberdeen Provisions.—These ought also to be taken into account, but as we have already indicated in cases I. (A and B) how they ought to be treated, we shall, in order to avoid repetition, leave them out of account here.

We proceed to calculate B's interest.

If B succeeds to the estate and has a son or grandson alive at the time, he will be entitled to disentail on paying one compensation. As he has four sons, it may be assumed that he will have a direct heir. An accurate calculation of B's interest, on this assumption, would have to take into consideration the various chances that the heir would be C, or any of B's other sons, or a son of one of the four. But for practical purposes it will be sufficient to fix an age which may be taken as that of the heir who will come next to B. It is more likely that the heir will be C than any one else, and, if not he, then the next eldest son of B, and so on. It would seem sufficient therefore, on the whole, to assume an age not greatly differing from that of C—say, age nineteen.

B's interest is therefore the reversion of the estate, expectant

on the death of A if B survives, burdened with the compensation which (it is assumed) B will have to pay to an heir-apparent now aged nineteen. This can scarcely conveniently be expressed in algebraic form, but its value may be calculated as follows:—The chance of B succeeding in the n^{th} year is

$$\frac{d_{80+n-1}}{l_{80}} \times \frac{l_{50+n-\frac{1}{2}}}{l_{50}};$$

and if he then succeeds, the compensation to be paid to his heir-apparent, omitting Aberdeen Provisions, will be

$$\bar{A}_{\frac{1}{50+n} : \overline{19+n}} \times 66{,}000.$$

The present value of B's chance of receiving a payment at the end of the n^{th} year is

$$v^n \times (d_{80+n-1} \div l_{80}) \; (l_{50+n-\frac{1}{2}} \div l_{50})$$
$$\times (66{,}000 - \bar{A}_{\frac{1}{50+n} : \overline{19+n}} \times 66{,}000).$$

We may either calculate the value of this function for each year of age, or approximate to the sum of these values by a formula of summation.[1]

C's Interest.

We have now to calculate the value of C.'s interest:—

C, if he succeeds, will be entitled to disentail without any consent. It may therefore be assumed that he will take the estate in fee if he survives A and B; for it is to be observed that although B may disentail, he can only do so on paying C (if alive) the full value of his interest.

C's value is therefore:—

Reversion to £66,000, expectant on the death of the survivor of A (80) and B (50), provided C (20) be then alive. The symbolical expression for which is

$$\bar{A}_{\frac{1}{80\cdot 50} : 20} \times 66{,}000.$$

Omitting, as above explained, the Aberdeen provisions, we value the interests at the following sums:—

B	£27,132
C	£26,613

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1 Since the paper was written, doubts have been expressed as to whether or not a substitute-heir, who, after succeeding to the estate, would have to pay compensation before disentailing, should be allowed the value of his reversion to the fee-simple of the estate less such compensation, or only to a reversionary life-interest therein. If the latter is decided to be the correct method of ascertaining his value, any actuary who has followed the methods of calculation we have adopted would have little difficulty in making the necessary alterations in the formulas.

CASE III.

Power to Disentail on paying Compensation to Three Heirs.—From the Table it will be seen that under both old and new entails an heir in possession (if aged 21), irrespective of the date of his birth, can disentail with the consent of the next three heirs.

Take the following example, in which we assume the entail to be a new one:—

A, the heir in possession, is aged 50, and unmarried.

B, the first heir (not heir-apparent), aged 30, unmarried; born after the date of the entail.

C, the second heir, aged 60; married, his wife's age being 55, and he has a number of children. He was born before the date of the entail.

D, the third heir, son of C, aged 20; born after the date of the entail.

Value of the estate, £50,000.

Clear rental of the estate, £2000.

Aberdeen Provisions.—It is to be observed that it is only in the event of A, though he marries, *having no issue*, that we are concerned with the annuity for his widow, and we are not concerned at all with the provisions he could make for children, because what we have to calculate is the values of the interests of B, C and D, and these would be defeated entirely by the birth of issue to A. We have to calculate the probability of A marrying, but having no issue, and this is of course the difference between the chance of his marrying and the chance of his having issue.

Probability of marrying for bachelor of fifty, per table *J.I.A.* xxviii. 376, ...	·12459
Probability of marrying and having issue—same table,	·06075
Difference, being the probability of marrying but having no issue, ...	·06384

The Aberdeen annuity to a childless widow of A will be
$\frac{1}{3}$ of £2000=£666, 13s. 4d.

We are not concerned with the annuity to a possible widow of B, because, if B succeeds to the estate, he will take it in fee-simple, and the interests of the subsequent heirs will be entirely defeated.

We ought, strictly speaking, to take into account, in calculating the interest of D, the provisions that C could make for his wife and younger children, if he should succeed; but having regard to the age of C's wife, and the remote contingency of his succeeding by the deaths of A and B before him without leaving issue, we think we may conclude that the provisions in question need not be taken into account.

B' Interest.

If B should succeed to the estate he would be able to acquire it in fee-simple, subject only to the annuity to A's widow, if he should leave one. The value of B's interest is thus:—

1. Reversion on death of A (50) without issue, if B (30) survives him, to £50,000, the value of the estate

minus

2. Value of an annuity of £667 to a wife of A, if he should marry but have no issue.

Or, expressed symbolically:—

1. $\overline{A}_{\substack{1 \\ 50:30}}$ × 50,000 × probability that A will have no issue (= ·93925)

minus

2. ${}_{1}a_{\substack{50:30|x}}$ × 667 × probability that A will marry but have no issue (= ·06384).

(We may assume the age of A's possible wife to be, say, twenty-five years less than his own.)

In these formulas it is assumed that an outside factor is used for the probability of issue to A, but a more exact calculation could be made if we had the deaths without issue in each successive year among a certain number of bachelors living at the age of 50. The table already referred to—*J.I.A.*, vol. xxi. p. 436—can be used for this purpose, by a process which is rather too lengthy to be conveniently explained here.

The formula for $\overline{A}_{\substack{1 \\ 50:30}}$, provided 50 leaves no issue, is

$$\Sigma v^{n-\frac{1}{2}} \delta_{29+n} l_{29\frac{1}{2}+n} \div (bl)_{50} l_{30},$$

where δ signifies the deaths without issue. (See formulas in Mr. Sprague's paper in *J.I.A.* vol. xxiv. page 327.)

Using the latter formula for the reversion, we value B's interest at about £17,500.

C's Interest.

The interest of C would be defeated, not only if he should die before A and B, and if either of them should have issue, but also if B should succeed to the estate by the death of A without issue; because, in that case, B would be in a position to disentail without paying compensation to C, who would thus lose all his interest in the estate. As C has a number of children, we may assume (as we did in Case II.) that, if he succeeds, he will be able

to disentail on paying compensation[1] to an heir-apparent, aged, say, 19 at present. The value of C's interest is therefore :—

1. Reversion to estate on death of A (50), if B (30) be then dead and C (60) be alive, provided A and B have no issue

minus

2. Present value of the compensation which C would have to pay to his son if the former should succeed to the estate

minus

3. Value of an annuity to a possible widow of A, which would be a burden on C's interest if he should succeed to the estate.

The above functions may be expressed symbolically as follows[2] :—

1. $\left(\overline{A}^{\,1}_{50\cdot30:60}\right.$ provided 50 and 30 have no issue$\left.\right)$ (50,000)

minus

2. $\left[\Sigma v^{n-\frac{1}{2}}\left\{\frac{\delta_{49\frac{1}{2}+n}(l_{30}-l_{29\frac{1}{2}+n})(l_{59\frac{1}{2}+n})}{(bl)_{50}\,l_{30}\,l_{60}}\right\}\times\left\{\begin{matrix}\text{Probability that 30 will}\\ \text{have no issue.}\end{matrix}\right.\right.$

$\left.\left.\times\,\overline{A}^{\,\frac{1}{2}}_{\overline{19+n}\,.\,\overline{60+n}}\right\}\right]\times 50{,}000$

minus

3. $\left(a^{\,2}_{50\cdot30\cdot60|x}\right.$ provided 50 marries, and both he and 30 have no issue$\left.\right)\times 667.$

This brings out the value of C's interest as £134 approximately.

D's Interest.

D's interest is deferred to the death of the survivor of A, B, and C, and will be defeated entirely if A or B should have issue, or if A should die before B. If, however, D should succeed to the estate after attaining the age of 21, he will be entitled to acquire it in fee-simple. His interest is thus :—

Reversion to the estate on death of survivor of A (50), B (30), and C (60), if D (20) is then alive, and if B (30) has died before A (50), and both A (50) and B (30) have had no issue

minus

provisions for a possible childless widow of A, and for widow and younger children of C, if he should succeed to the estate.

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[1] See footnote, page 31.

[2] δ represents the deaths without issue in the case of A (50). We have used an outside factor for the probability of B having no issue, as the deaths without issue cannot conveniently be calculated from any published tables. The probability that B will have no issue (*J.I.A.* xxviii. 376) is ·50821.

Or, expressed symbolically:—

$$\left\{\bar{A}_{\frac{(50\cdot30)\cdot60}{2\,1}:20} \text{ provided 50 and 30 have no issue}\right\} \times 50{,}000$$

minus provisions as above mentioned.

As before stated, we do not think the provisions for C's widow and younger children need be taken into account, and we are further of opinion that the provision for A's widow, if he should leave one, will not greatly affect the value of D's interest. We shall therefore only calculate the value of the above reversion. Omitting, in the first instance, the question of issue to A and B, the continuous formula for the reversion would be

$$\int\left[v^t\{l_{50+t}\mu_{50+t}(l_{30}-l_{30+t})\,l_{60+t}\,l_{20+t}\bar{A}_{\frac{1}{60+t}\cdot\frac{}{20+t}}\}\div\{l_{50}^{\cdot}\,l_{30}\,l_{60}\,l_{20}\}\right]dt$$

$$+\int\left[v^t\{l_{50+t}\,\mu_{50+t}(l_{30}-l_{30+t})\,(l_{60}-l_{60+t})\,l_{20+t}\}\div\{l_{50}\,l_{30}\,l_{60}\,l_{20}\}\right]dt$$

To give effect to the condition that A shall die without issue, we may substitute

$\frac{1}{2}(\delta_{49+t}+\delta_{50+t})$ for $l_{50+t}\mu_{50+t}$

and $(bl)_{50}$ for l_{50}

The condition that B shall die without issue will be given effect to by multiplying the value of the reversion by the chance that B will not have issue, which we have previously found to be ·50821.

By the above formula the value of D's interest comes out £1600.

Administration:

Notes by an Old Hand,

BEING

THE INAUGURAL ADDRESS FOR SESSION 1892-1893

BY

JOHN M. M'CANDLISH, F.R.S.E.
HONORARY PRESIDENT OF THE SOCIETY

Administration.

ANY difficulty which may be experienced by an Honorary President of this Society in selecting materials for his opening address does not arise from there being a dearth of subjects likely to interest you. It has occurred to me, however, that for one who has retired from active business and who is almost certainly addressing you for the last time, an appropriate object might be to try whether his own professional experience could suggest any ideas or hints that might possibly be even a little helpful to his younger brethren. The chief occupation of my life has been to administer the affairs of a Joint Stock Company, and I propose now to speak of the work of administration generally, and more particularly of the management of such associations as Insurance Offices. In doing so, I need scarcely say that if a man near the close of life can think of any lessons he has learnt or any he can possibly impart, they must be chiefly drawn from his own mistakes and failures. Experience and reflection which have often come too late for his own use may be not altogether unserviceable to others.

WORK OF AN ACTUARY.

I do not forget that I am addressing an Actuarial Society, but some of you may be aware that I have always sought to give a broad significance to the word Actuary. Twenty-eight years ago, soon after this Society was established, on the first occasion of my occupying this chair, I tried to express my ideas of what ought to be the character and functions of the Actuarial profession. While recognising the great value of high mathematical attainments, and looking on their possessors with sincere admiration and some little envy, I have been disposed even in the matter of figures to draw a line between an Actuary and a Calculator. But looking to the development of life assurance business in this country and throughout the world, and to the nature of the attainments required by those who conduct it, attainments which when fairly possessed by any man ought to place him on a level with the members of any other learned profession, it has seemed to me very desirable that the name of Actuary should not be used with exclusive application to one small though important part of the work to be done, but

should include the whole range of duties involved in the conduct of insurance business; in other words, that an Actuary ought to be a man who can not merely make calculations, but who can manage an Insurance Office in all its departments, and that the man who can do this ought to be recognised as an Actuary.

But whether we so apply the word Actuary or not, there can be no doubt that every man who has adopted Insurance as the business of his life ought to study the art of administration, because in the proportion of his professional success this will be his principal work. It seems very desirable that the chief administration of Life Offices should be in the hands of men familiar with the principles and methods of those calculations which are required for fixing rates of premium and estimating liabilities, and able, if need be, to undertake them themselves, and at all events to guide the calculators and check their results; but what will chiefly occupy them will be administrative work; and for every employé the better qualified he is for that kind of work the greater will be his value to the office and the chances of his advancement.

Administrative work is not restricted to the employés of Joint Stock Companies. In some occupations, such as those of barristers and physicians, it is scarcely to be recognised, but there are few mercantile or manufacturing businesses where a certain amount of administrative capacity is not needed, and sometimes a great deal and of a high order; and we are all accustomed to see this capacity displayed—often brilliantly and to our great benefit—in the management of domestic households. It enters, of course, very largely into imperial and municipal government, into the control of the naval and military forces, and into the affairs of the churches. Wherever, in fact, bodies of men or of women, larger or smaller, have to be guided, controlled, or arranged for, the functions of the administrator find a place.

Constitution of an Insurance Office.

But it is with insurance offices we have to deal, and we may consider at this stage some of their characteristics. We need not in this connection recognise any difference between a Joint Stock Company and a Mutual Society, or even refrain from speaking of both under the general name of Company. Such a Company is a complex machine with many parts. There is, first, the Constituent Body, shareholders or mutual assurers, for whose benefit the business is conducted and whose votes ultimately control it. Then there is the small representative body, chosen by them to attend more closely to its affairs and to their interests, and to whom they delegate much of their power, the Board of Directors. Then there is the Chief Administrative Officer, by whatever name he may be

called, Chairman, Manager, President, Secretary, or Actuary, who is no doubt the servant of the Constituent Body, acting through the Directors, appointed and controlled by them and responsible immediately to them, but who, by virtue of his office, is not a mere delegate or servant of the Board, but has both duties and responsibilities of his own, and who must often exercise an independent judgment. Then besides such important officers as Medical Advisers, Solicitors, and Auditors, there are the rest of the administrative staff, many of them exercising considerable independent authority, and all of them responsible in a greater or less degree for the right conduct of the business. Then there are the Company's representatives throughout the country and often throughout the world, the managers or other chief officers of branch establishments, and the very large body of agents. And lastly, there are the very numerous persons who have dealings with the office, such as the assured and applicants for insurance and many others. The rights and duties of the administrative staff in relation to each of the other classes as well as *inter se* may suggest a good many subjects for consideration.

There is a close and obvious analogy between the constitution of such a Company and what we know as the British Constitution. In both there are the Constituent Body, the Legislature whom they elect, the Executive, and so on, and we shall not find it difficult to perceive many characteristics, beneficial or otherwise, that are common to both.

Divided Responsibility.

One source of weakness in both systems is the great division of responsibility which exists. It is perhaps a necessary consequence of the limitation of the power possessed by any one person, and from that point of view the disadvantage is more than compensated. At the same time I have long been satisfied that businesses in the hands of individuals or small co-partneries, if they could command sufficient capital, confidence, and endurance, enjoy far more of the elements of success than Joint Stock Companies, and that it is therefore a mistake to assume, as has often been done in recent years, that a business which has prospered in private hands will be equally prosperous when weighted with the more cumbrous machinery of a Company. Fire or Life Insurance, however, owing to more than one circumstance, can scarcely be prosecuted at all except by a Company, but it is likely to be prosecuted more successfully when some one man is willing and is allowed to treat it very much as if it were his own private concern. That Company, indeed, is fortunate whose employés from the highest to the lowest regard its interests as if they were their own, and who are encouraged to do so, and I feel bound to say that according to my

experience that has been the general rule with Scottish insurance offices. But what I am now referring to is the advantage there is to any business concern of having one competent man who can and does think and speak and act on its behalf as if its whole success or failure depended on him, and to whom all personal considerations, whether of ease or credit or money, are wholly secondary in comparison with the true well-being of the Company.

It would be comparatively easy to do this if the constitution of a Company gave this one man anything like absolute control, which may sometimes happen where the supreme executive authority is in the hands of the Chairman of a Board or of a Managing Director, where, in effect, both legislative and executive functions are in the same hands. But the power and influence which in such a case are capable of working beneficially are also capable of being abused; and on the whole, safety lies in a limitation of power and in efficient checks, even though they involve some sacrifice of force and vitality.

Relative Duties.

We are thus brought to one chief problem which faces the administrator, whether he is the man who has only to answer to the Board of Directors or a subordinate answerable to his immediate superiors in the official hierarchy. To what extent is he to exercise an independent judgment and to assume responsibility? It is, of course, generally easy, as it is the line of duty, to obey explicit directions; it is still more easy to avoid the trouble of thinking for one's-self, and to do nothing without explicit directions. How far it is one's duty to go beyond this may depend a good deal on the character and practice of those to whom we are immediately answerable. Here, then, comes in (as, indeed, all through our subject) what is of the very essence of successful administration, a knowledge of human nature and the capacity to adapt one's-self to its various phases. Let us suppose the case of some gentleman at the head of a department of the Company's business, with other men under him, but himself responsible to his chief. It may be assumed that his subordinates will not always see things in the same light that he does or be equally qualified to deal with them; and that, on the other side, the man above him may, owing to his very position, take a broader view and with wider knowledge and experience than his, and, at all events, may come to a different judgment. In dealing with those below him, he will find that while it may be essential that he should instruct them and correct their errors, and while they will expect this to be done, and will recognise the value of their being thus educated in their business, he will not secure the best work they are capable

of doing, or that hearty and thoughtful co-operation which will be so useful to himself, unless he carefully avoids everything that would discourage them. It will depend on how he exercises his duty of supervision, whether his juniors strive to give their heart and mind to their work or content themselves with a mechanical attention to it.

When turning to the other side he has possibly a more delicate problem to solve. If he is fortunate in his immediate superior, he will find his suggestions welcomed, considered, and frequently adopted, and his work either accepted *simpliciter* or so talked over as to inspire him with a greater interest in it, whether he agrees with or dissents from the views of his chief. But in any event he will be wise not to allow discouragement to affect him otherwise than as a stimulus to greater thoughtfulness and renewed effort.

There is one point in the conduct of the superior powers in an office, whether directors or officers, towards their subordinates as to which I may interject a note, and that is that care should be taken to support them, if possible, in any dispute with outsiders. Some one may say, By all means let them be supported when they are in the right. But small thanks, say I, to the man who supports me only when, in his superior judgment, I am in the right; he is bound to do that for the right's sake; it is when I am thought to be in the wrong that I most need support, and when that support, being given to me from personal considerations, will be the more valued, and will attach me more warmly to those who give it.

Natural Ambition to Rise.

But we have to deal also with the natural ambition of men to rise in the official scale. I need scarcely remind those who have that ambition of the old and commonplace maxim, that the best preparation for guiding and controlling other men is to practise the art of being guided and controlled, and that to be able to command we must learn to obey. I do not expect that it will check ambition of this kind to know that the upward movement aimed at is not unaccompanied by drawbacks, and that a man often parts with much ease and comfort when, from some position where he has been accustomed to relieve himself of care and responsibility by casting them on an official superior, he passes into one where he has to face the burden of ultimate decision, and where he will often be not half so much his own master as he seems to be, but fettered by circumstances which he may not always be at liberty to disclose. I commend to your notice some ideas which Sophocles puts into the mouth of Creon when he is defending himself to his sovereign Œdipus against the suspicion of coveting his throne:—
'Neither,' he says, 'am I of a nature to covet being a monarch

rather than acting as a monarch, nor any other who has a sense of prudence; for now I receive everything from thee without fear, but were I a king myself, I should have to do many things against my own wishes. I am not so deceived as to wish for anything but what is with profit honourable. Now I am friends with all, now every one salutes me, now they who have a suit to thee court me. How then should I abandon this place and grasp at that other?' It is sad to think that this calm philosophy did not long save Creon from the fate of becoming a monarch, and tasting to the full the cares and dangers of that position.

Devolution of Work.

On the other hand, one sees every day how difficult men find it to learn the art of deputing, to acquire the inclination and ability to commit to others work which they fancy they can do better themselves. No doubt in many cases the man who feels this difficulty can do it better himself, and any way, he can usually do it more to his own taste. There is also the temptation that it is easier for the time to do the work yourself than to teach some one else to do it, and afterwards to alter and correct it when he has not done it according to your mind. It is far from uncommon to find a man of capacity occupying himself with work below his powers, and that might be well enough done by some junior, and so either burdening himself beyond his strength or neglecting more important matters while attending needlessly to details. Admitting that details are sometimes of the very essence of the work to be done, and have a value that is not always sufficiently recognised, it is of great importance in this, as in everything else, to cultivate a sense of proportion, and, seeing that none of us have at our command either time or capacities absolutely unlimited, to learn to select what work can best be done by ourselves and what may be usefully devolved upon others. But it takes half a lifetime to learn that there may be many things which our assistants can do better than ourselves; that in judging of their and our relative capabilities we are apt to be a little prejudiced; and that even if we could do everything better than any one else, it may be more important that a thing should be done promptly, even though not quite up to our standard, than that, waiting our leisure—a leisure that may never come—it should be postponed or omitted altogether. I feel bound, however, to add that to depute is one of those virtues which can be carried to excess; for I once heard of a Joint Stock Company where each of the principal officers, three or four in number, left the chief part of his work to be done by the man below him. The effect of this was not such as to encourage imitation.

Shareholders and Directors.

To return to the gradation of positions in the management of an insurance office, we may pass at once to the relationship between the Legislature or Board of Directors and their constituents the shareholders, or policy-holders. The former are elected by the latter, and are so far under their control, that as usually they retire from office after so many years' service they might fail to secure re-election, and might even be disturbed during their tenure of office by a refusal to approve of their reports, or some other vote indicating want of confidence. In ordinary circumstances, however, and so long as things are going reasonably well, any proceedings of this kind are happily unknown. Shareholders, especially if numerous, have little cohesive power, and as in most instances they have some interest in the prosperity of the concern, they hesitate to injure their own property by an open quarrel with their Board. This is as it should be. The Directors as a rule know far better than the shareholders do, what is, or what is not likely to benefit the Company : they possess information which the others do not, they are more deeply interested in the results, and even in such a matter as the choice of their own colleagues they have probably before making a recommendation, looked at the matter in a far more thorough way than any body of shareholders is likely to have done. It is well, therefore, that any interference with their judgment is seldom attempted and scarcely ever successful. You will understand of course that I am speaking of companies of recognised character ; that there are Joint Stock Companies outside insurance business whose directors cannot be treated with the same confidence is a fact which the public records of legal proceedings make too evident.

Directors and Managers.

We may now turn to the delicate subject of the connection between a Board of Directors and its chief executive officer. I have long regarded it as one of the greatest advantages possessed by banks and insurance companies in Edinburgh, and as having largely contributed to their almost invariable success, that we have in the society of this city so many gentlemen peculiarly well qualified to be Directors of such companies. When there are met round one table lawyers, bankers and merchants, university professors, country gentlemen, retired Indian civilians and others, combining great varieties of experience, a present connection with affairs, and sufficient leisure to give ungrudging attention to the duties of their directorate, whatever can be done by means of a Board for the safety and prosperity of a company seems amply

provided for. The functions of a Board are of course quite of a different kind from those of the Executive, which latter call for a far more minute attention and a keener sense of individual responsibility. Any attempt, therefore, such as has sometimes been observed, on the part of a body whose duties are deliberative and legislative, to usurp executive functions can only be detrimental to the interests concerned. The intelligent directors of insurance offices usually see this clearly. They recognise also that the business they have to deal with, whether it be fire or life insurance or both, is of an extremely technical character, not mastered even by the officers of a company without years of exclusive devotion to it, and of which gentlemen undertaking the office of director usually have little or no knowledge. Without inquiring how far the same state of things is to be found in connection with other departments of business, it is certain that in an insurance office the directors must be very dependent on their principal officer for the information and advice on which they form their opinions. A competent manager may indeed so place even a very complex technical problem before a body of intelligent directors as that most of them at all events will understand it, and be able to give a confident and correct decision on it, but then it is possible to imagine the same problem submitted to them with an equal appearance of clearness and trustworthiness, yet so as to lead them to quite a different conclusion. That different Boards equally intelligent do come to opposite conclusions on some of the questions which divide actuaries and managers is a fact, and must partly be ascribed to the different ways in which the questions have been put before them.

Fundamental Questions.

It is happily not my duty, and certainly is not my inclination, even if this were the place to do it, to offer any hints to Directors as to how they may discriminate between sound and unsound advice. If it were I should be inclined to ask what advice they would like to receive. There are some broad questions on which men in general and directors of Joint Stock Companies in particular have *a priori* different opinions and inclinations. Some, for instance, set a higher value than others on magnitude of business, some on the avoidance of risk, some on immediate results, some on permanent solidity, some on over-topping rival companies, some on the amount of dividends or bonuses, some on the amplitude of reserves. Fire and Life Insurance have one common feature which distinguishes them from most other kinds of business. The results as to profit or loss are very far from being immediate, and in life insurance in particular are greatly postponed, and when they are

realised they seem to be largely matter of chance. It would be rash to say that the element of chance or what is usually regarded as such can be entirely eliminated; but those who look most closely into the matter will be least disposed to admit its importance. To take another point of view, we may regard life and fire insurance as articles that are manufactured and sold. Now those who make or sell cotton goods or iron bars or any other commodity know before they sell them what they have cost, and if the state of the market compels them to sell below prime cost they know it at once and are warned. But taking as the chief part of the cost of fire insurance the claims that arise, and of life insurance the premature claims, we do not know the cost till long after we have fixed the price, and the very nature of fires and early deaths gives them the appearance of accidents which could not have been guarded against. Another consideration is that as insurance offices exist for the purpose of providing for risks it seems to defeat the very object of their being if a transaction offered is refused because it involves risk. A life is proposed for assurance and some unfavourable circumstances reveal themselves; but every life, it will be said, is uncertain, the most healthy people sometimes die prematurely, it is our business to insure lives, some other office will take this one if we don't, why then should we restrict the volume of our transactions and appear to fall behind our neighbours? Or we are asked to insure property against fire at a rate which, if anything is to be gathered from the experience of the past, is certainly inadequate; but the hope will be encouraged that this place will not burn, there are offices so keen for business that it is sure to be accepted by one of them if we let it pass, why should we lose a customer and disappoint an agent, when after all any loss is entirely a matter of chance and may never happen?

Questions as to the Extension of Business.

Such are some of the views that are apt to suggest themselves, but the administrator who has the requisite knowledge and courage, and I may add the self-denial, will advise differently. Experience and a study of the conditions have taught him that in life insurance a careful selection and discrimination as to the lives to be insured make a material difference in the profits earned; that a low rate of profits in proportion to premiums charged can usually be traced to a high rate of mortality; that a high or low rate of mortality, extending over a course of years, is not a matter of chance but the direct effect of some cause which can be no other than laxity or care in selection; that persons of the same age of whom it can be reasonably concluded that they have not the same prospects of longevity, ought not to be insured on the same terms; and that to

introduce into a profit scheme an inferior class of lives at normal rates so as to reduce the bonuses which the better class of lives might otherwise obtain, is a direct injustice to the latter, and can be of no advantage to the office, except by swelling the amount of its transactions to give it for a time a fictitious air of prosperity. If the administrator is dealing with fire insurance he knows that the results depend not on the number and extent of fires, but on the adequacy of the rates charged, that whatever the number and extent of fires prevalent in any locality or among any class of properties, the profit or loss depends on how far corresponding rates of premium are charged and paid. Now it is obvious that a great anxiety for magnitude of business leads inevitably to the reduction of rates; for where the fever of competition rather than the judgment of experience is allowed to determine rates, the rates and consequently the profits are practically at the mercy of the ignorant, the sanguine, the imprudent, and the ambitious. Periodical fluctuations in the number of fires are to be expected, and the cause is not far to seek, but this only suggests to the prudent administrator the need for ample rates of premiums and sufficient reserves; and he will not be readily led astray by the idea that because fires are numerous and all offices are suffering alike, it is a misfortune that no one could have guarded against. It may be when there are general complaints of diminished profits that this simply arises from the prevalent ambition for magnitude, and the consequent competition for transactions, having so blunted the critical spirit all round, and so reduced the rates of premium, that the balance of receipts over disbursements necessary for the provision of dividends has been allowed to disappear.

It must, of course, be acknowledged that a large and growing business may reasonably be taken as one indication of a Company's success, and of the ability and energy of those who conduct it. Unfortunately it is the sort of indication which is most conspicuous, and is therefore most quickly appreciated. It is also, I am inclined to think, the sort of success most readily attained. Insurance business, like other things, can be bought at a price, any quantity of it, and the difficulty is, not to get the quantity desired, but to get it without paying too much for it; and the payment, as I have already hinted, being an item which only appears fully in the long run, and is not too conspicuous at the time of purchase, the one thing which does bulk to the eye is the amount obtained.

It may be said that large businesses tend to lower the percentage of cost, but as matter of experience this is very doubtful. In fire insurance it may be said that shareholders may be more benefited by a low rate of profit on a large amount of business than by a much higher rate on a small amount: and this may be true where the differences of amount are very considerable. But it

is an unquestionable fact that both in fire and life insurance a small business has often yielded, not merely rateably, but absolutely larger profits than one of greater magnitude.

Increasing Need of Caution.

The question of how large a business is to be done by an office is practically in the hands of the Directors, rather than of the executive, and they have it in their power to stimulate the production of quantity at the expense of quality and profit, or *vice versa*. Of course, it may be assumed that neither Directors nor any of the staff of an office will consciously propose to aim at magnitude without regard to profits: they will truly say that they desire both. But those of us who are familiar with the administrative work of an office know that every day, and almost every hour, questions arise as to how far the one or the other of these considerations is chiefly to guide us. The risk of loss, as has already been said, is remote and uncertain, while immediate satisfaction is to be derived from adding to the Company's business and its premium-income, and extending or strengthening its connections. The permanent staff of an office, if the matter were altogether in their hands, would probably exercise some caution, looking forward to the time when carelessly selected business is sure to produce its natural results. But when it is found that praise and more substantial rewards go at once to the men who do a large business, there is a temptation to leave the question of profit and loss to take care of itself, or to throw the responsibility of it upon the Directors, and to indulge them with that kind of success which, as it appears, they value most. And if the Directors of many offices are all ambitious of conducting great businesses and of out-rivalling each other, and show that that is what they are prepared to pay for, it is not difficult to see why expenses increase, and the rates and other conditions of profitable business are relaxed. What therefore I desire to urge on the members of this Society, the future managers and secretaries and actuaries of Insurance Offices, is that in the advice they may give to their Boards, and in what independent action may be open to them, they have an increasingly difficult problem to solve in connection with this subject. Confining attention now to life insurance, everything points to a growing need of caution. The profits of life offices, and even the certainty of avoiding absolute loss, are being largely affected by a variety of circumstances. Among these are the reduction in the rate of interest obtainable from investments, the increasing risks and uncertainties about the ultimate safety of investments in general, the need that will probably be felt of assuming in our calculations even a lower rate of

interest than 3 per cent., and the increasing cost of procuring business. I take leave to mention another element of uncertainty, the acceptance of lives without medical examination. This, I believe, has not become general yet, but the high character of the offices that have introduced it, and their success in attracting business, will make it difficult to resist the example; and while I understand that the conditions upon which such transactions are entered on are intended to neutralise the additional risk, the experiment will be watched with some anxiety, since, so far as I am aware, there are no materials for estimating the extent to which a possible selection against the office may affect the future rate of mortality.

It may be acknowledged that to insure lives without a medical examination, but with such a difference of rates or conditions as to compensate more or less fully for the difference of risk, may be less hazardous than if the competition for business were to lead offices to adopt a lower standard of insurability in connection with their ordinary schemes and rates. That it would be possible to do this, and that it would tell materially on the rate of mortality, and consequently on the profits, is beyond dispute; and where there is a very great pressure all round to gather in a large business, it will tax the conscientiousness and care of those at headquarters to prevent the office being flooded with indifferent lives. You will, I dare say, recollect the length to which this was carried a few years ago by the agents in Belfast of an American office. All offices, I dare say, have had some frauds of this sort tried on them at one time or another, with or without the connivance of their agents. Some companies are accustomed to boast of the number of transactions they decline, as if it were an indication of their prudence. It may be, but I have long been inclined to believe that an office which is careful in the selection of lives does not really decline more transactions than another that is careless. It soon becomes known to its agents and others that questionable lives have little chance of being accepted, and they cease to be offered.

Details of Administration; Manner of bringing Business before a Board.

But leaving these broad and somewhat overpowering subjects, I would refer to another problem in the intercourse between a Board and its immediate advisers; a problem which involves difficulties on both sides. I have already hinted that the judgment of a Board on a matter submitted for their decision, especially if it be of a technical character, will depend a good deal on

the manner in which it is placed before them. Now, there is a great disproportion between the time available for that purpose and what is required thoroughly to master a transaction. There are few acts of administration more difficult than after an exhaustive study of some complicated transaction to marshal the details of it for the information of a Board, so that each member shall readily follow them, to omit or pass lightly over those which, though not to be neglected, might confuse the main issue, and to anticipate the difficulties which may possibly occur to one or another. It is a curious circumstance how, on such an occasion, the views likely to be taken by each of the gentlemen present will suggest themselves to the speaker, and lead him to regulate his statement so as to meet them. I cannot suggest too strongly the need of careful preparation for this particular duty. It is an art not to be acquired without pains, and presents many difficulties; but the effect of efficient preparation is to save much time and discussion, to impart confidence, and to lead to prompt and unanimous decisions.

A doubt will often arise how far it is one's duty to indicate at the outset one's own opinion on the question submitted. There are cases where a decision for or against is so much a matter of course that it would be almost to insult the understanding of a Board to assume the contrary. It may happen, too, that it is the duty of a Manager to give direct advice rather than to submit a problem for consideration. But in most cases it seems desirable to aim at absolute impartiality, at all events in the first instance. Experience has led me to place a high value on the spontaneous opinions of such a body of men as most Insurance Companies possess in their Boards on a case fully and impartially laid before them. There will possibly be differences of opinion, and one man's difficulties will be answered by another, but much light will probably be thrown on the matter. It will seldom happen that the opinion of a Manager will not have some influence, even if it be purposely withheld at the outset. In the course of the discussions it may be asked for or volunteered, or there may be opportunities of drawing attention to points which may seem to have been overlooked, or of suggesting or removing difficulties, or of showing the desirableness of further inquiry. The responsibility of a final decision rests, of course, with the Board. How far it is a Manager's duty to offer advice, or to urge his own views, will depend in some measure on the importance of the point at issue, and largely on how far he believes his advice to be desired and appreciated. Cases will sometimes occur where it is his duty to indicate with the utmost respect, but explicitly, that he has the misfortune to have arrived at a different conclusion from that of the Directors.

Good Administration; Preparation Required.

I am conscious that in thus discussing the duties of a Manager in relation to the Directors of an Insurance Company, I may appear to be dealing with a subject which is not likely to be of much practical value to some of you at any very early period. I might hopefully ask your indulgence for dwelling on subjects which have had an interest for myself, but I am fain to believe also that some of the considerations I have been referring to may not be without service even to the youngest member of the Society. It may be some time before you have to submit complicated transactions to a Board of Directors, but you cannot too soon cultivate the art of making what is known as a *précis* of facts and considerations, and of expressing it with fulness, with brevity, and with precision. Both in matters of business and in the intercourse of daily life you will find this a valuable acquisition. Nor is it a manager only, but the youngest clerk or apprentice also, who will find the use of studying the characters of the men he has to deal with, and practising the art of dealing with them, of giving and taking, of supporting his own views and deferring to those of others. Something will be gained also if you are led to regard the business of an administrator as one worth studying and preparing for, and not merely as a thing in which success is to come to you by nature and at haphazard. Fortunately for us in this country, most of us have opportunities from our earliest years of practising this art. In our cricket and golf and football clubs, in our debating societies and other literary or professional institutions, in the work of all sorts of charitable and religious societies, as well as in municipal government, in school boards, poor-law boards, and the like, in short, pervading our whole lives, there is ample room for administrative capacity, and for the practice which helps to create it. This is one advantage of any occupation like ours in which administrative duties play so large a part. The qualities which serve us in our profession have a hundred other uses, and know no limitation of age or country. At the same time they do not call for the possession of genius, nor for any exceptional endowments of mind or body. No demand is made upon us for eloquence or for learning, for the eye of the artist or the passion of the poet, for the keen observation of the naturalist or for the strength or agility of the athlete. If this be true, you may say, our vocation must be very commonplace, and only fit for an inferior class of minds; and I should not be greatly surprised if some ambitious young member of this Society had already taken this into his head, and were fancying that the work of an insurance office, into which circumstances have thrust him, was scarcely worthy of his

powers or deserving of his efforts. I may be allowed to say something in reply to this suggestion.

Insurance Business worthy of all pains.

The business of insurance, whether Fire or Life or Marine, yields to no other that I can think of in its far-reaching importance and beneficence. I will not repeat here what I have had occasion to say elsewhere on the influence which insurance exercises on the wealth of nations and the well-being of mankind. It does not, indeed, create wealth, and it does not even prevent loss, not directly at least. Its function is to distribute loss, and, in one sense, no man can legitimately be made richer by means of insurance. But not only are thousands and tens of thousands of men and families every year delivered from ruin, or, at all events, from very serious loss, by means of insurance, but millions are saved from apprehension of such loss and ruin almost worse than the reality; while scope is afforded—otherwise unattainable—for manufacturing and commercial enterprise, and for the happiness and safety of personal and domestic life. We have splendid objects to aim at if we choose to rise to them.

And in seeking these objects, there is ample room for the use of scientific and general knowledge much more extensive and accurate than most of us possess. In a former address to this Society on Fire Insurance, I referred to the quite extraordinary number and variety of subjects which it brought under our notice; and though Life Insurance can scarcely boast of so many points of contact with the material world, if you include under this head the investment of funds you will find it leads you over a very wide field. I have often been struck with the way in which even fragments of imperfect knowledge proved unexpectedly useful, and alas! with the still larger number of cases in which dependence had to be placed on the more exact knowledge of others.

Administration largely the Management of Men.

But what I have been chiefly referring to has been the purely administrative part of our work, and that, as I have already hinted, consists largely of the art of influencing other men. I remember being amused when a rough-looking fellow-passenger on board an Atlantic steamer, in answer to some question about his occupation, told me that 'he handled cattle on a thousand miles of the river Missouri.' On a different occasion another fellow-passenger, who told me that he had been a Cheap-Jack in England, described the plans and devices by which he had induced the crowds in market-places to buy his wares to an extent that in a very few years had

raised him from the position of an ex-corporal in a foot regiment to that of a man of large fortune. Happily, we have not to handle men as my one friend did cattle, or my other the rustics or artisans of English villages; but it is undoubtedly true, if I may be allowed to say it, that the work of an administrator in its highest form is to handle men, that is, to inform and guide and influence them, to act in concert with them or to bend and restrain them, to bring them into agreement with himself and with each other, to organise them for action or to reduce them to a harmless inactivity,—in short, to manage them. Not many men, of course, have either the capacity or the opportunity to be administrators on this ideal scale, but no man can pretend to manage a Joint Stock Company without having occasion at one time or other to attempt at least some of these enterprises; and no man can look forward hopefully to such work, or be fit for it when it comes, who does not deliberately prepare himself for it.

I can readily understand that to some persons, especially to those who have not tried it, the handling of cattle on a thousand miles of the Missouri might seem a more interesting sort of occupation than sitting at a desk and doing even the superior work of an Insurance Office. But I have long come to the conclusion that the most interesting work a man can engage in is the work in which he chooses to interest himself most—that, in fact, the interest is in the man more than in the work. No doubt, there are occupations, as there are persons and books, naturally more interesting than others, and the different idiosyncrasies of individuals have to be reckoned with; but if it is possible, as I believe it to be, for the most commonplace occupation to become interesting to the man who engages in it with high motives, and who makes up his mind to do every bit of his work as well as it can possibly be done, it is still more certain that if such a subject as ours fails to interest any man he ought to inquire very seriously whether he cannot himself apply the remedy.

One of the Inductive Sciences.

Administration is an art, but it is also a science, and I have been accustomed to regard it as one of the inductive sciences. The inductive philosophy as taught us by Lord Bacon and others comprises three leading principles. There is first the collection, verification, and arrangement of observed facts; secondly, the suggestion of some hypothesis which will connect these facts, and explain their common origin and the laws which control them; and thirdly, the processes of investigation and experiment by which the hypothesis is questioned and put to the proof, and, if it bear the trial, is converted into an established law. I need not go

further for an illustration of these principles than to the laws of mortality with which we are all so familiar. It is true that we have not yet arrived at any such well-defined and simple law respecting human mortality as the law of gravitation in physics, but, by the processes I have referred to, we have arrived at conclusions which, at all events, afford a trustworthy foundation for the great fabric we are rearing upon them.

But it is for the ordinary business of administration that I claim a philosophic basis. I am afraid that among able men of business there are some who would be inclined to repudiate this; what they justly pride themselves on is being thoroughly practical, and they may think it would detract from that high claim if they were suspected of looking at the common affairs of life with a philosophic eye. But it is quite possible to act on scientific principles without knowing it, and especially without clothing these principles with scientific phraseology. It is possible to be a good chemist and a good physiologist without being able to cook a mutton chop, but that cannot be well done except on a scientific foundation, however little the cook may recognise it. So in our daily work we are constantly, though perhaps unconsciously, putting into action philosophic principles, and unless we do that and do it well our work will be a failure. A Writer to the Signet with whom I was associated many years ago, one of the cleverest men in his profession, used to tell me that in writing business letters he did not trouble himself about the laws of grammar and rhetoric but just said what he meant. He did not recognise that grammar and rhetoric are merely expressions for those methods by which (and by them only) we express what we mean, accurately, unmistakably and forcibly, and his attempts to express his meaning without attending to these rules often failed to convey that meaning to other minds. What seems very desirable is that we should each of us, whatever our duties are, get as clear a conception as we can of the principles on which we are acting. The mere inquiry will often disclose to us that we are on a wrong line, but when we see that we are on the right line we shall march on with far greater firmness.

A little of this philosophising will impart an interest to our work which is wanting, when we only stumble through it in a haphazard way. Another advantage may be described in the words of Sir David Brewster, though he is speaking of something so transcendant as the discoveries of Sir Isaac Newton. 'The importance,' he says, 'of such a discovery does not lie in its intrinsic novelty and beauty; it is the number of its applications and the ubiquity of its range that stamp its value.' So in our business and in our ordinary dealings with men, if by some process of induction we arrive at a clear general principle on which to act, its great use is, that in new and unexpected emergencies, where otherwise we should find ourselves at sea, we may be able to recognise at once

that they fall within principles already settled in our minds, and we are able to act with promptitude and with confidence.

Value of the Faculty of Imagination.

There is one faculty of the human mind which enters largely into inductive science and into the management of men and the conduct of affairs, whose useful if not indispensable character is not always recognised as it ought to be. I refer to imagination. I go so far as to believe that it is difficult to be a first-class man of business without possessing and exercising this faculty in some considerable degree. I have known indeed very able men of business, who if they would scarcely be flattered by being classed among philosophers, would resent still more strongly the imputation of being influenced in business by so dangerous a power as imagination. But if they are good men of business they are influenced by it. To many persons who have thought little about it, the fruit of the imagination appears to contrast itself with truth and facts, and any yielding of belief or sentiment to the influence of this insidious faculty is regarded as a weakness to be ashamed of and a temptation to be guarded against. No doubt many hard-headed men of business have been keen lovers of poetry, and some have even been votaries of the muse, but they would probably have regarded their business and the poetry they loved as things utterly foreign to each other and to be carefully kept apart. If this were the place and the occasion, it might not be difficult to show that poetry and so-called fiction are often the embodiment of the truest of truths, and the hardest of facts, but I will merely invite your attention now to one or two instances in which imagination will assist us in the ordinary work of our profession.

(*a*) *In Selecting Lives for Assurance.*

Take first so simple a question as the acceptance of a given life for assurance. The question about the insurableness of lives in general and of any one life in particular is not whether the man is in good health at the moment, but what are his prospects of longevity. We have to form some opinion about what is entirely future, and the future is eminently the realm of the imagination. Our opinion will be based upon existing facts, and there are of course many cases where the facts at our command appear to leave no room for hesitation, but we all know how many cases there are of a doubtful kind, and we can see that the number of these would be much increased if we could get at all the facts of them. The reason of this is not far to seek. In two-thirds of the insurances effected on lives with ordinary assurance offices the age of the insured is 35 or upwards. Now 35 is very near that proverbial

age of 40 at which it is said that every man is either a fool or a physician, which just means that then if not earlier he begins to be warned that he is mortal. The facts which warn him are fitted to warn us also if we know them, and it is their probable effects on his longevity which we have to weigh and measure. It is here where there is room for great differences of practice. What adverse facts are to be treated as serious, what disregarded? What slight hints or indication in the man's own statements or in the relative reports are to be passed by or made the subject of further inquiry? We have to map out in a sense the man's future life and see him with the eye of imagination yielding to or surmounting the various hazards which his papers suggest as more or less likely to present themselves; and thus to form some opinion of what we ought to regard as a fairly average life, and whether the life under review comes up to that standard.

Where the imagination comes in is in drawing inferences from slender indications. Where the more severe methods of inductive philosophy come in is in the endeavour to get at facts from which to draw inferences, and in a rigid scrutiny into facts to test the inferences. Let me give an illustration. Some years ago the manager of an Insurance Company was calling on one of their agents when this conversation occurred. Said the agent, 'Mr. So-and-So wishes to increase his insurance.' 'I am glad to hear it; what has he already?' 'He took out three policies last September for £700 in all.' 'Ah, that was when I was away from home; why did he cut up his insurance into three policies?' I don't know.' 'What is he?' 'A Commercial Traveller.' It did not require great imagination on the manager's part to suggest that either this man was in embarrassed circumstances and needed to give security to three different creditors, or that his life was a bad one, and was being made the subject of speculation by more than one person. The medical examiner was asked to pay special attention to the case, but his report did not disclose any abnormal features; and it was found on searching the books that no notice had been received of the policies being assigned. Still the manager had some faith in his imagination, although the facts seemed to contradict it, and he set on foot further inquiries. These disclosed the fact that while this man was earning in a precarious way no more than a guinea a week, his life, though it had been declined by several offices, was at that moment insured for £8000. Proceedings were adopted to compel a cancelling of the transactions; and these brought the speculators into the field, and they, after a little while, delivered up the three policies. What became of the other insurances I do not know. The man died a few months afterwards of some disease which a physician would have recognised if he had been informed of the symptoms, but which could not be discovered merely by examination. On another

occasion a similar fraud was prevented by the London Secretary of the same Company, who, observing a very slight peculiarity in the dress of an applicant imagined that he might perhaps have been got up for the occasion, and having probed the case further found that it was so. This man also died very soon afterwards, having his life insured with several offices.

(*b*) *In Making Investments.*

In dealing with investments there is much scope for this faculty of imagination, and a great deal of money has been lost for want of it. A loan is desired on the security of some sort of property at home or abroad. Take the simplest case of a mortgage at home. You are shown a rental and a report by some well-known valuer, and you are satisfied. The valuation for many purposes is unimpeachable and could scarcely have been different, for the property has just been bought for the amount at which it is valued, or it could be sold to-morrow for that amount, or neighbouring properties of a like nature have recently fetched that amount. What more do you want? A little imagination! For your object it is, of course, desirable to know what the property is worth now; but the important point is what it will be worth five, ten, twenty years hence when you want back your money, when the borrower may be dead or bankrupt, when ever so many things may have happened, in addition to neglect or decay, to affect its value. It may be hard to anticipate every contingency, but very great losses have been sustained even in this city, where we fancy ourselves so long-sighted, through the overlooking of things possible and even probable, which a little exercise of the imagination might have foreseen. Still more important is this faculty where the conditions of a transaction are complicated, where various interests are involved, and where perhaps the laws and customs and even the prejudices of a foreign country or a British Colony have to be taken into account.

(*c*) *In Dealing with Men.*

It is by means of the imagination that we are able to project ourselves into the minds of other men, to place ourselves in their position, and to look at things from their point of view, and so be prepared to anticipate their wishes, to meet them or to frustrate them as circumstances may require, to influence their minds and remove their difficulties. I have often seen when a group of persons were discussing some subject, and apparently all at sixes and sevens, that one man by the use of his imagination has got behind the phrases in which the others were expressing their differences, and seen that they were really more nearly at one

than they themselves supposed, and so has been able to suggest a solution that has satisfied them all.

I have known, indeed, men of great force of character who have been devoid of this faculty of entering into other men's minds, and whose power lay in their inability to see any other side of a question than their own, or to imagine that they could by any possibility be in the wrong, and who were thus able to pursue their objects with unhesitating, and often, therefore, with triumphant energy. But such a man needs to possess not only great force, but a suitable field of action; and to most of us it will be far more serviceable to prepare for future difficulties by exercising the imagination beforehand on what they are likely to be and on the way to meet them.

I remember a very clever friend telling me that he sometimes amused himself by preparing witty repartees for imaginary incidents in conversation; but he must have been fortunate if, for the good things he thought of, he often found fit opportunities, and if, when an opportunity came, the appropriate repartee was ready at hand. I suppose that candidates for Parliament, who expect to be *heckled* on the topics of the day, do not trust entirely to the inspiration of the moment for their replies. It may be thought by some that this habit of preparation would unfit a man for ready and spontaneous action, but it is not so; on the contrary, it accustoms the mind to take in such situations and to deal with them, so that by-and-by the prevision and the preparation come to act so rapidly as to appear intuitive or automatic. Both social and business life have a good many of the characteristics of a game of chess, where you ought not to make a single move without considering the probable countermove of your adversary and how you are to meet it, then his next move and yours, and so on for as many successive moves as your mind has power enough to anticipate. In the game of life and of business, as in chess, the successful player will, *cæteris paribus*, be he who looks farthest forward, and most correctly forecasts the future moves.

Other Faculties, Tastes, and Pursuits to be Cultivated.

I have dwelt on the uses of the imagination because they are apt to be overlooked, but there is scarcely any mental faculty or any kind of information which may not find scope for itself in our profession. I shall not apologise for the discursiveness of this address. In its frequent change of topics it has in a manner reflected the characteristics of our business. Each of us is a part, though it may be a humble part, of a very great and complex machine built up on a scientific foundation and working for far-reaching and beneficent objects. If we can broaden our conceptions of our ordinary duties, see them in their relation to

the great world around us, feel them to be worthy of all the preparation we can give, and of every present effort we can make to perform them in the best possible way, we may confidently reckon on present comfort and ultimate success.

While I thus regard the business of insurance as capable of employing and stimulating both the mental and moral faculties, you will understand how my attention is increasingly drawn to the importance of men cultivating and keeping in continuous exercise through all the exacting and exhausting duties of professional life, interests and occupations outside of these, that when these fail the others may 'receive them into everlasting habitations.' I think it is Locke who recommends that every man besides the main business of his life should have some other pursuit secondary to it but capable of furnishing that variety of occupation so necessary for mental and moral healthfulness. I can scarcely help fearing that in our day physical recreation, so valuable and necessary in itself, is sometimes used too exclusively as the alternative to our business activities. What ought to be aimed at is some kind or kinds of pursuit which will not merely occupy and interest at the moment, and by strengthening our faculties increase our fitness for the ordinary duties of our calling, but will be something to hold on to and to fall back upon, when these have come to an end. There can be few men who do not regret, when they arrive at a period of enforced leisure, that they have made not only so poor a use of their season of activity, but so insufficient a preparation for employing to advantage the remaining term of life.

You will I am sure excuse me if I am led to look still further ahead, and to suggest to you who have now the power of choosing that in acquiring and cultivating faculties and tastes and habits for use whether in or out of business, we shall act wisely if we specially favour such as, according to the imagery used by the Divine Teacher, whose words I lately quoted, will 'receive us into everlasting habitations.' None of us I imagine will be satisfied to think that the business of insurance, still less the recreations with which we intermit it, are the whole end and scope of our existence. But even amidst the darkness which veils the future we can discern the abiding influence which these things are exerting upon us. I have been speaking of some of the ways in which we may shape our lives, but our lives are still more certainly shaping us, moulding and fashioning individual character, the only one of our possessions which we can be sure of carrying into a future life. It is not irrelevant, therefore, to the subjects we have been considering, to remind ourselves that there is one pursuit of infinite value open to each of us, which may be followed concurrently and in accord with our daily business and with every other worthy occupation, even 'Godliness, which is profitable unto all things, *having promise* of the life that now is and of that which is to come.'

The Recent Australian Bank Failures

BEING

THE INAUGURAL ADDRESS

TO THE ACTUARIAL SOCIETY OF EDINBURGH

FOR THE SESSION 1893-94

BY

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The Recent Australian Bank Failures.

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WHEN I had the honour of being asked to occupy this chair, I had little difficulty in choosing a subject upon which to address you at the opening meeting of the Session. For I at once determined to bring before you something of a practical nature, connected with the business in which most of us are engaged, and there was one subject in particular which had lately been occupying my own mind and the minds of many others who have to do with the investment of money. The stoppage of thirteen Banks within a period of six weeks, suspending liabilities for deposited money amounting to many millions sterling, and creating a financial situation in the Australian Colonies unparalleled perhaps in the whole history of modern times, is an occurrence which may well engage our attention if we are able to gather from it any of the lessons which must surely be involved in an event of such remarkable significance.

Let me say at the outset that I cannot pretend to offer to you any picture of the situation as that must have presented itself to those in the midst of it. Nor is it my purpose to attempt to bring before you the inner and more intimate causes which contributed to the catastrophe. I could no doubt quote a good deal that has been written and said on the subject of Australian banking and finance generally, pointing out the artificial prosperity created by an undue importation of borrowed money—the inflation of land-values that led up to the 'boom' in Melbourne and its natural issue in collapse—the consequent failure of Companies that practically had been formed to assist or engage in land speculation—the reaction upon the Banks of these things and of the resulting financial depression—and the culmination of these and other causes in the loss of public confidence that brought about the disasters of the present year. About all this you must have heard and read for yourselves. I shall only ask you to look at the circumstances as they occurred, from the point of view that is possible to us who are at such a distance, and who must take all our information at second hand.

I have said that this subject is connected with the business of Assurance. You will at once have understood me to allude to the fact that many Assurance Companies had sought in these Banks a convenient and, as their Directors and Managers believed, a safe

and profitable channel for the employment of money. From our point of view, one of the outstanding misfortunes of these recent events is the demonstration they afford that this channel of investment can no longer be regarded as available, unless under greatly altered conditions. Until this demonstration arrived, depositors in the leading Australian Banks might well have been excused for the confidence they felt in the safety of their investment. The Banks had long been regarded as sound and stable financial institutions—they had been established, some of them, for forty, fifty, nearly sixty years, had regularly paid good dividends, had already passed through periods of trial with both safety and credit, and had set aside Reserve Funds of more or less substantial amount to provide against contingencies that might arise. It would be impossible to say that on all points the management of these Banks was unassailable. In fact, with the lesson of recent occurrences before us, it is easy to see that, in at least one important respect, their system of business exposed them to grave peril in a time of panic; while there were other features that certainly ought to be amended if they are to seek the confidence of British depositors in the future. But considering what was known of the best Australian Banks, I venture to say that, until quite a recent date, few securities could have promised more safety than the deposit of money with them for short fixed periods.

It must, however, be admitted—for events have shown—that, in relying on the stability of Australian Banks, sufficient account had not been taken of all the risks connected with banking in the special circumstances in which it was pursued in Australia, and especially of the peril that might ensue from one characteristic of their administration. Probably no group of Banks could have long withstood the persistent drain of deposited money to which these Australian Banks were subjected, but unquestionably with a larger proportion of liquid assets they would have had a better chance to outride the storm. One prominent cause of the difficulty seems to have been the locking up of money that was repayable at call or at short date in securities which were from their very nature not readily convertible. The essential danger of this system was not practically apparent in ordinary times, but it became very prominent when the reaction from a period of inflation in land values had rendered difficult the realisation of securities; and when a time of panic set in it produced the overthrow of institutions whose solvency no one would seriously have questioned.

One of the earliest illustrations of this danger which the British public received from Australia was the stoppage in March 1892 of the Australian Deposit and Mortgage Bank, a Company whose business was not that of banking in the ordinary sense, but rather

(as its name implies) that of raising money on deposit, and investing it in mortgages at a higher rate of interest. This Company, until a few days before it suspended, had seen no reason for apprehension—it would seem that, unlike other companies brought to grief before and about the same time, it had not suffered seriously by the fall in value of Melbourne properties—it had been earning good dividends, and had built up a fairly substantial reserve fund; but certain rumours got afloat, depositors who had money at call came flocking to demand it, and the Directors saw no prudent alternative but to close the doors.

Now the suspension of a Company of this kind is unquestionably a serious matter for all concerned. Apart from the uneasiness it is apt to produce in other quarters, it necessarily involves a great loss of prestige and doubtless also of credit; and at the very least it involves shareholders and creditors alike in a vast amount of anxiety and inconvenience, to say nothing of actual and possible loss. But when circumstances have arisen in which a Company either cannot meet immediate demands upon it, or cannot do so without peril to the interests of creditors whose claims have not matured or are not being immediately pressed, it is clearly the fair course toward all concerned that payments should be at once stopped, so that all claims may be dealt with on an equal footing. And it may be remarked in passing that the evil of possessing a large proportion of illiquid assets has at least this compensation, that when a difficulty does arise the assets are more likely to be preserved unimpaired for the creditors than they might be if they were to a large extent easily convertible, and the directors were under the temptation of meeting demands as long as the liquid assets would hold out.

The Directors of the Australian Deposit and Mortgage Bank closed their doors when they saw that the rush to withdraw deposits was assuming serious proportions, and they lost no time in producing one of those 'schemes of reconstruction,' which in various forms have since become so familiar. It must be said for the reconstruction scheme of this Company that, compared with some of those produced under more recent suspensions, its provisions were eminently favourable to the creditors. The whole unpaid capital was to be called in by instalments spread over a period of years; and a new Preference Stock was to be offered to (but not thrust upon) depositors in lieu of their deposits. By far the larger proportion of this stock was in fact taken by Australian creditors, thus providing a substantial additional security for the remaining debts, as the deposits and other obligations of the reconstructed Company fell, of course, to be provided for before the claims of preference shareholders. On the other hand, the depositors or debenture-holders who did not take preference

shares were asked to extend the period of repayment of their deposits for seven years from the respective dates when they would fall due by the original agreement. On behalf of certain British creditors objection was taken to this proposal on two grounds—first, that the extension of time asked was too long; and second, that by making the extension run from the dates of maturity of the deposits an undue preference was given to those depositors whose claims matured early. It was pointed out that in a winding-up or liquidation of the Company the claims of all the depositors would rank equally, without reference to dates of maturity, and it was contended that a similar rule should prevail under the reconstruction, and the deposits should be paid off in equal proportions. The Directors, however, received sufficient support to carry their scheme, and it is now being worked out.

I have referred specially to the case of this Company, although its suspension was separated by a considerable interval of time from the occurrences of this year, because the Company seems to have stood out distinctly in importance and reputation from among the ordinary Building Societies which came to grief in consequence of the collapse of the land boom, and because the reconstruction scheme, the main features of which I have stated, was no doubt to some extent the model of other schemes that have lately been carried through.

About the same time that the Australian Deposit and Mortgage Bank suspended payment, the Mercantile Bank of Australia also closed its doors. This was a failure of a very different kind. The Directors up to the last possible moment had been keeping a fair face to the public, announcing profits and dividends, and reporting the Bank in a flourishing condition, all the while that its affairs were in the worst disorder. No attempt at reconstruction has been made, and the liquidation is proceeding with what prospect there may be of adding substantially to the small dividends already declared.

On 25th January 1893 the Federal Bank of Australia suspended payment, and three weeks later a meeting of shareholders in Melbourne resolved upon a voluntary liquidation. Besides the principal liquidation in the Colony of Victoria, three others were commenced—in New South Wales, in South Australia, and in this country. The report of the Official Receiver in London, issued last August, reveals a very discreditable state of affairs. Loans had been made on the faith of valuations made by the debtors themselves—large advances had been made to the Directors and their friends—one of the Directors had been relieved of a debt of £70,000 by a deed executed on the day before the Bank's suspension—and, to crown all, the various liquidations in Australia were being carried on by the late officials of the Bank at a total annual

cost for salaries, rents, etc., of over £12,000, while not a penny had been paid by way of dividend, and no call whatever had been made upon the shareholders. Efforts were at once set on foot by the creditors in this country to alter the state of matters, but as yet no tangible result has been achieved, unless to these efforts is due an inquiry now instituted by the Court in Melbourne as to the progress of the liquidation.

The failure of the Federal Bank has a special significance, for it was one of a group of banks in the Colony of Victoria which had associated themselves for mutual protection, and (as the public believed) for mutual assistance in time of need. It is said that the Federal Bank was admitted to the Association not without some difficulty and hesitation. If this be so, its inclusion must be held to have been all the more deliberate. Certainly it gave increased confidence to depositors, and the whole group of banks reaped advantage from the belief created in the public mind that they were to stand by each other. When the time of trial came, however, the associated banks failed to assist this unfortunate member, and even declined to soil their fingers with the liquidation which they were asked to undertake, replying in terms which in the circumstances seem almost cynical—'that compliance with the Federal Bank's invitation would be foreign to their ordinary functions, and that as liquidation was inevitable, it was better that the operation should proceed in the ordinary manner.' Commenting on the action of the associated banks in this case, and on the disasters which followed, a very competent authority has observed,—'The banks themselves were somewhat to blame for what lately occurred. The public distinctly understood that the associated banks were to stand by each other, and when they let the Federal Bank go, faith in them was gone also. The Federal was perhaps the weak brother of the Association; but if the other banks had stood by it, even if its affairs were in a hopeless mess, it is probable that the subsequent run upon their own resources would not have taken place.' Such is the opinion of a gentleman well acquainted with financial business in Melbourne. If the charge of breaking faith with the public is well founded, and if timely assistance to the Federal Bank would have kept it from falling, and prevented the calamities that subsequently ensued, the retribution which followed was both swift and heavy. Before the end of May, seven out of the remaining nine associated banks were themselves obliged to close their doors.

The first to succumb was the Commercial Bank of Australia. On the 4th of April the Directors found it necessary to suspend payment, owing, as they said, 'to the continued drain on the Bank's resources.' The failure of Building Societies in the previous year had somewhat weakened the bank in its cash resources, and

damaged its credit, and a large draft had had to be made upon the Reserve Fund. As a consequence the shares had fallen greatly in the market, but at the half-yearly meeting in February the usual dividend was declared, and this had a reassuring effect for the time. The Federal Bank's suspension, however, seems to have revived the uneasiness, and this resulted in a considerable run upon the Bank for the withdrawal of money. At first the failure of the Commercial Bank of Australia does not seem to have excited special disquietude. In fact, we are told that the announcement was quietly received both in Melbourne and Sydney. The Bank to some extent stood in a somewhat exceptional position. Of much more recent formation than some of the old established banks in the Colonies, its business, aided by the absorption of other institutions, showed a very rapid expansion, so much so that at the date of its last balance the Bank held deposits of British and Colonial money amounting to nearly £12,000,000 sterling, or ten times the amount of its Paid-up Capital, while its volume of business, as measured by the amount of the assets and liabilities, exceeded that of many older banks. In view of this exceptionally rapid growth and expansion, and an impression which seems to have prevailed that advances were made more freely by this Bank than by its more conservative neighbours, there may have been a feeling that its failure was not specially significant as reflecting on the stability of the banks in general.

It is stated that in this case substantial assistance was offered by the other banks, and also by the Government, but that the Directors refused the offer, deeming the amount insufficient. It is further stated that the other banks had agreed to support the Commercial Bank of Australia if it could show securities that could be readily realised. But it is manifest that there was here no real fulfilment of the reputed pledge by the banks to stand by each other. Assistance to a bank that is subjected to a run upon its resources is of no avail if it stop short of what is needed to satisfy the clamorous creditors, and an offer to advance upon readily realisable securities seems almost a mockery when the trouble largely arises from the fact that securities cannot readily be realised. Anyway, the Commercial Bank of Australia, like the Federal, had to take its course alone.

If the stoppage of the Commercial Bank of Australia did not give sufficient warning of an impending crisis, the Colony was destined before many days to receive further evidence that a time of serious trouble had arrived. On the 12th of April the English, Scottish and Australian Chartered Bank, a Corporation founded in 1852, having its headquarters in London, and its chief colonial office in Melbourne, was compelled to suspend payment 'owing to the great drain on its resources which has set in since the suspen-

sion of the Commercial Bank of Australia.' It is stated that in this case the decision was at once taken not to apply for assistance either from the Government or from the Associated Banks.

That we may understand the next casualty, we must bear in mind the intimate business relations of the different Australian Colonies. The business of those Banks which had suspended was not confined to Melbourne or to Victoria, but extended into other Colonies by means of branch offices, so that any disquietude created by the suspensions was not confined to the place where it originated, but spread over a wide area. We may note in passing that the possession of a large number of branch offices must have intensified the effect of a run upon any particular Bank. Each branch was a separate channel through which the liquid assets of the Bank could be drained away.

So late as on April 13th, the Colonial Treasurer of New South Wales intimated, in the Legislative Assembly, that the Government did not intend to institute an inquiry into the condition of the local banks, believing that their financial position was sound. This statement was avowedly made with the view of calming apprehensions. It was unquestionably made in perfectly good faith, and, moreover, in all probability the belief of the Government was strictly warranted. On the following day the announcement was made that, having regard to the disturbed state of financial matters in Melbourne, the Banks in Sydney had considered it desirable to strengthen their position, and with this view the leading institutions had come to an informal agreement to support each other in case of need, to the fullest extent of their resources. These reassuring statements, however, failed to inspire the public with confidence, for, at a date not farther removed than the 20th of the same month, the Australian Joint Stock Bank was compelled to suspend payment 'owing to the persistent withdrawal of deposits.' This Bank, having its headquarters in Sydney, was established in 1852, and had paid large dividends to a recent date. There is in this case no mention of any assistance from the other Banks or any application made for it. Indeed, we are told, after the event, that the position of the Bank had latterly been regarded as doubtful, and my information does not enable me to say with certainty whether the Australian Joint Stock Bank was one of the Banks which had agreed, within a week of its stoppage, to support each other. Upon this event the Ministry of the Colony, becoming anxious as to the financial situation, had a conference with the Managers of the Banks doing business in Sydney, when the financial situation was discussed, and the Managers undertook 'to use the whole power at their command to remove the ill-founded fears entertained, and to maintain the credit of the solvent financial institutions of the

Colony,' with what success we shall presently see. But the Ministry themselves took a further step towards allaying the storm, for on April 24th it was announced that a Bill would be forthwith introduced into both Houses of Parliament with the object of enacting that the Note Issues of the Banks in the Colonies should be a first charge on the Capital and Reserves, and of authorising the Government in case of emergency to make such Notes a legal tender for a prescribed time. In the light of subsequent events it is strange now to read that, in consequence of this prompt action by the Government (I quote from a telegram of April 24th), 'the panic caused by the Bank suspensions has now entirely subsided'; but there seems to be no doubt that, as a temporary measure, the making notes legal tender had a beneficial effect in relieving the pressure.

For the time being, however, the centre of disturbance again shifts back to Melbourne. On the 19th April a telegram had appeared in the Melbourne *Age*, to the effect that the Chairman of the London Chartered Bank of Australia (the other great Australian bank having its headquarters in London) had informed the London representative of that journal that the fall in the Bank's shares was due to an uneasy feeling amongst the shareholders as to their liability for future calls, but that the Bank had amply provided against all contingencies without trenching on the reserve. It was further stated, that on the date mentioned an assured feeling in regard to financial affairs prevailed in Melbourne, and that during the preceding two days only ordinary demands had been made upon the banks. Not a week had passed, however, before, on April 25th, the London Chartered Bank of Australia suspended payment, the fall in the price of its shares having alarmed depositors and caused a steady drain of withdrawals.

On 28th April the Standard Bank of Australia suspended payment for the second time. It had been obliged to close its doors in December 1891, but was able to carry through a reconstruction scheme, and to recommence business in May 1892, only to suspend again within eleven months. This failure was of much less importance to the public than any of the others, the amount of deposit-money being comparatively small. On the day following, however, another of the great banks gave way to the pressure upon its resources. The National Bank of Australasia suspended payment 'owing to the existing distrust which was causing heavy withdrawals of deposits at all the Bank's branches.' The depletion of this bank's liquid assets must have been aggravated by the circumstance that it had upwards of 130 branches at which demands could be made upon it. We are told that in this instance the Associated Banks invited the manager to apply for assistance, but it was not considered that this step would be wise in the interests *of the general body* of the creditors.

This failure of another large bank impressed the Victorian Government with the necessity of doing something, if possible, to prevent universal disaster. The step that suggested itself was to decree a five days' holiday for the banks throughout the colony, to allow the managers time to deliberate on the situation. It was thought probable that the deliberations of the bank managers might result, among other things, in a scheme for the amalgamation of two or more of the colonial banks. That result, however, did not arrive, nor has there, up to the present time, been any effectual movement in the direction of amalgamation. Looking to the circumstances of the Banks, and to the evidence there is of the Colonies having been hitherto only too fully supplied with banking facilities, probably some judicious amalgamations would be the best thing that could happen in the interests of banks and colonies alike. Perhaps the reconstructed banks are too busy at present putting their houses in order, but it is to be hoped that, by-and-by, when they settle down to more normal conditions, they will turn their attention in this direction. This, however, is a digression, and we must resume the thread of events.

The five days' suspension of banking business was not looked upon with favour by the banks themselves, who considered that it would be prejudicial to the general interests of their customers, and some of them disregarded the proclamation. It is noteworthy that those banks which from the first decided to do so, weathered the storm, and have carried on their business uninterruptedly since—an indication, perhaps, of the superior strength of their position.

Before the five days' *moratorium* commenced, the Colonial Bank of Australasia had been suffering from a steady drain of withdrawals on the part of depositors, and as soon as the Bank re-opened there was an immediate run upon it which compelled the Directors to suspend payment. This was a Bank but little known to depositors in this country, its business having been practically confined to the colony of Victoria, and its deposit-money obtained there.

The next event was the suspension of the Bank of Victoria on the 9th of May. This Bank had been in existence for about forty years, having been incorporated in 1852. It had been suffering—chiefly at the Head Office and branches in Melbourne—from a withdrawal of deposits dating from the suspension of the Commercial Bank of Australia at the beginning of April. It is stated in a telegram of May 10th from Melbourne, that as far as outward appearances went there was then very little excitement in connection with the financial crisis, though this important failure still further complicated the situation. In fact, it almost appeared as if the storm had spent itself in so far as the Melbourne Banks

were concerned. The remaining Banks felt themselves in a strong position, and for another week there was no fresh catastrophe.

But a specially trying time was at hand for those Banks which had drawn considerable sums of deposit-money from Scotland. The Whitsunday term was to bring with it the maturity of many deposit receipts, and in the circumstances it was not to be expected that these would be renewed. As a matter of fact, we are informed that one of the Banks had advices to the effect that there was no hope of a renewal of any of the Scottish deposits about to mature; while another Bank was informed by its London Office that every British deposit falling due up to the end of the year would be withdrawn. In these circumstances, the Commercial Banking Company of Sydney and two others in the neighbouring colony—the Queensland National and the Bank of North Queensland—suspended on the 15th May. The City of Melbourne Bank stopped on the following day, and warrants which had been issued for the Whitsunday payments were returned unpaid. The Royal Bank of Queensland, on the 17th, brought up the rear, and closed the long list of suspensions that had taken place during that eventful period of six weeks.

The remarkable spectacle was thus presented of no fewer than thirteen Banks—most of them of first-rate importance—having closed their doors, in a condition to all appearance of perfect solvency, but unable for want of sufficient ready money to hold out in face of the demands of a section of their creditors. The following statement shows in summary form the position of those Banks at the respective dates of their last balances prior to suspension. I am indebted for most of the figures to a table given in the *Australian Banking and Insurance Record* for June 1893. The Standard Bank of Australia is omitted, as I have not been able to get more recent figures than those of 1891.

Date of Suspension.		Date of Foundation.	Paid-up Capital, Reserves, and undivided Profits.	Callable Capital.	Liabilities to the public and to other Banks.	Assets.
1893						
Apr. 4	Commercial Bank of Australia	1866	£2,058,990	£1,800,000	£12,635,066	£14,694,056
,, 12	English, Scottish and Australian Chartered . .	1852	1,244,670	900,000	7,023,679	8,268,349
,, 20	Australian Joint Stock .	1852	1,286,857	861,311	11,791,637	13,078,494
,, 25	London Chartered of Australia	1852	1,367,958	1,000,000	7,384,600	8,752,558
,, 29	National of Australasia .	1858	1,730,488	1,500,000	11,155,499	12,885,987
May 5	Colonial of Australasia .	1856	573,822	843,750	3,820,458	4,394,280
,, 9	Bank of Victoria . .	1852	889,380	1,800,000	7,857,405	8,746,785
,, 15	Bank of North Queensland	1889	260,022	250,665	391,281	651 303
,, 15	Commercial of Sydney .	1834	1,524,489	600,000	12,500,553	14,025,042
,, 15	Queensland National . .	1872	1,341,811	800,000	9,281,159	10,622,970
,, 16	City of Melbourne . .	1873	732,231	500,000	5,103,552	5,835,783
,, 17	Royal of Queensland . .	1885	432,049	375,000	927,556	1,359,605
			£13,442,767	£11,230,726	£89,872,445	£103,315,212

Taking the Banks all together, it may be seen from this statement that their assets in hand, at the value appearing in the books, amounted to £1, 3s. for each £1 of liability. If to the assets we add the callable capital—that is to say, the uncalled and reserve liability on the shares—there were, on paper, resources to the extent of £1, 5s. 6d. for each £1 due to outside creditors. Doubtless, at the dates of suspension, the nominal proportion of assets to liabilities must have been still greater, the withdrawals that had taken place having reduced equally the two sides of the account; but by that time the realisable value of the assets had probably shrunk considerably. Had those Banks all been forced into liquidation, and the attempt been made to realise on the gigantic scale represented by their liabilities, the result must have been very disastrous, not only to shareholders and creditors, but to the entire community. There was, however, no intention of forced winding-up in the minds of the directors, who in several instances would seem to have had their schemes of reconstruction ready to be launched almost as soon as they closed their doors. Whatever may be thought and said as to the precipitancy with which one at least of those schemes was carried through, the utmost credit is due to the Boards of Directors who, in such trying circumstances, promptly framed and produced schemes by which they hoped, with time given them, to meet their liabilities in full.

With the exceptions to be afterwards referred to, the reconstruction schemes of the various Banks presented a great degree of uniformity in their main features. The shareholders were to pay up by instalments some proportion, larger or smaller, of their liability; while the depositors and other creditors were to receive payment of the sums due to them by instalments, spread over a period of years commencing after a stated interval. Preference shares were in some cases offered as an alternative to long-dated deposit receipts for part of the liability, but their acceptance was not made compulsory; and in regard to dates of repayment all depositors were treated alike, whatever the due dates of their deposits. This last rule was departed from in the case of the London Chartered Bank of Australia. That Bank, however, had only a small proportion of its deposit money from Great Britain, chiefly repayable at short dates, so that the British creditors did not suffer by making the period for repayment under the reconstruction scheme run from the original dates of maturity. There were special provisions in all cases for the creditors on current account, the directors being empowered to make advances to them, and even (in some of the schemes) to pay out current-account balances below a certain amount.

These schemes may be said to have been adjusted between the

Banks and their creditors, for, before being submitted for formal acceptance, they were in each case the subject of negotiation and compromise between representatives of the Bank on one hand, and of the creditors on the other. The committees in Scotland appointed to protect the interests of depositors rendered a good deal of service in this way.

There were two schemes, however, which led to conflict between their promoters and creditors whose interests they affected—namely, the schemes of the Commercial Bank of Australia and of the English, Scottish and Australian Chartered Bank.

The former is the one to which I alluded as having been carried through with undue precipitancy. Simultaneously with the announcement of the suspension of the Commercial Bank of Australia, the directors called a meeting of shareholders and depositors to be held two days later, to consider a scheme of reconstruction, the terms of which, when disclosed, were briefly these:—The subscribed capital of the Company being £3,000,000, of which £1,200,000 was paid up, the balance of £1,800,000 was to be paid by quarterly instalments spread over six years. A new preference share capital of £3,000,000 fully paid was to be created in the manner after mentioned. These sums, amounting together to £6,000,000, were to form the capital of a new Bank to take over the assets and liabilities. The preference capital of £3,000,000, in so far as not voluntarily taken up by the ordinary shareholders and the public, was to be provided by the creditors, who were to submit to the conversion of one-third of their claims into preference stock. The remaining two-thirds of the deposits and other liabilities was to be met by Deposit Receipts, bearing 4½ per cent. interest, and payable at the expiry of five years from the respective due-dates. After the new Company should have paid ten half-yearly dividends of 8 per cent. per annum on its ordinary shares, the preference given to the creditors' shares was to cease as to capital, while it was to continue as to dividend to the extent of 5 per cent. per annum. It was recognised that corporate bodies and trustees, who held deposits in the Bank, might be precluded by the terms of their charters or deeds of settlement from holding preference shares in a public company, and it was proposed that in such cases the whole amount of the deposit should be paid off by instalments in the same manner as the two-thirds to be paid in other cases.

The scheme had the old objection of giving some creditors a preference over others as to priority of payment, and it had besides a new and startling one, that in respect of a large proportion of their claims, the position of creditors, who had lent their money either at call or for definite periods, was to be altered to that of partners in a new company, without right to repayment of their

capital save in the event of a winding-up. It says much for the readiness of the colonial creditors to accept any scheme that promised to save them from the results of a forced liquidation, that the Directors were able to carry such a scheme at all.

The first meetings of shareholders and creditors in Melbourne, at which this scheme was brought forward—meetings held within two days of the suspension—resulted, the Directors say, in resolutions in its favour being carried unanimously. Efforts were thereupon made to obtain the concurrence of the British creditors, and meetings for that purpose were held in London and Edinburgh. The Directors have stated that at these meetings the scheme was approved of 'without dissent.' This is true only in the technical sense that no opposing resolution was successfully brought forward, for it would appear that a good deal of dissent was indicated at these preliminary meetings—certainly at the meeting held in Edinburgh—and, as events showed, the scheme was in fact strongly objected to by a considerable section of the creditors.

The statutory provision under which a scheme of arrangement can be made binding on the creditors of a Company having its headquarters in Victoria, is contained in an Act of the Legislature of that Colony, the 'Companies Act Amendment Act, 1892,' which was in fact (with variations we need not consider) an adoption of our own Joint-Stock Companies Arrangement Act, 1870. That Act provides as follows:—

'Where any compromise or arrangement shall be proposed between a company which is, at the time of the passing of this Act or afterwards, in the course of being wound up, either voluntarily or by or under the supervision of the Court under the Companies Acts, 1862 and 1867, or either of them, and the creditors of such company, or any class of such creditors, it shall be lawful for the Court, in addition to any other of its powers, on the application in a summary way of any creditor or the liquidator, to order that a meeting of such creditors or class of creditors shall be summoned in such manner as the Court shall direct, and if a majority in number representing three-fourths in value of such creditors or class of creditors, present either in person or by proxy at such meeting, shall agree to any arrangement or compromise, such arrangement or compromise shall, if sanctioned by an order of the Court, be binding on all such creditors or class of creditors, as the case may be, and also on the liquidator and contributories of the said company.'

On application to the Chief-Justice of the Supreme Court at Melbourne on 14th April, an order was made directing meetings of the shareholders and creditors of the Bank respectively, to be held ten days later, for the purpose of dealing with the scheme in terms of the Act. The creditors in Great Britain, who must have

owned among them about one half of the Bank's deposits, had less than a week's notice of this meeting. It was to be held in Melbourne on Monday the 24th of April. The notice to the British creditors was dated the 17th, and received by them on the 18th or 19th, and it invited proxies in favour of the Directors' nominees to be sent in to the office in London not later than Friday the 21st. It afterwards appeared that provision had been made for cabling to Melbourne the number of such proxies received and the amount represented by them, but no corresponding provision appears to have been made for creditors desiring to vote against the scheme, or for modifications of it. In fact, the British creditor, unless he was in favour of the scheme, had practically no opportunity of making his voice heard at this meeting, which, by a stated majority in number and value of those present, was to decide upon the approval or otherwise of the arrangement offered. The scheme, however, was adopted at the meeting. Two days later it received the sanction of the Chief-Justice, and the reconstructed Bank soon opened its doors.

Some weeks had elapsed from the date of the order sanctioning the scheme, when it was discovered in this country that an appeal could be taken to the full Court at Melbourne, and no time was then lost in reopening the matter. On 30th May an application was made to the Court on behalf of two of the Scottish creditors, who represented other depositors to a considerable amount, for special leave to appeal against the order, and after discussion the Court granted the application, the Judges indicating a strong opinion that the foreign creditors had not had sufficient time given them before the scheme was carried through.

Unquestionably the design of the Act of 1870, the provisions of which have been quoted, was to serve the interest of creditors by giving effect to the wishes of the general body, and preventing an obstructive minority from standing in the way of any arrangement that should seem advantageous to the creditors as a whole. The Act is quite explicit as to the course that is to be taken to ascertain the mind of the creditors, and as to the extent of the majority that is required before the scheme can be made compulsory. But it admits of considerable latitude of interpretation as to the precise function that is to be assumed by the Court in dealing with an application for approval of a scheme that has been accepted by the requisite majority. The arrangement or compromise so agreed to is to be binding 'if sanctioned by the Court,' but on what considerations is the Court to give or to withhold its sanction? Is it merely to inquire whether the necessary steps have been taken and the mind of the creditors properly ascertained? Or is the Court to inquire into the nature and terms of the arrangement, and to satisfy itself that it is a proper arrangement

in the circumstances of the Company, and one that gives the creditors all the advantage due to them? The Act does not say.

In these circumstances it is not surprising that high judicial authorities have been at variance on the subject. It would appear that while at first the views and practice of the English Courts tended towards the latter interpretation of their function, the Courts have gradually leaned more and more towards leaving creditors to judge for themselves what is for their interest, and have become more and more ready to sanction any scheme of arrangement that has been fairly and honestly accepted by the statutory majority. On the other hand, very instructive recent illustrations of these divergent views have been afforded by the Australian Court, in connection with the reconstruction schemes of the Banks. In the Supreme Court at Melbourne, the Chief-Justice (Madden) showed a strong disposition to accept the decision of the creditors as sufficient warrant for the Court's approval, while another Judge (Mr. Justice Williams) took the other view and considered it his duty to examine each scheme on its merits and make any amendment that appeared to him to be called for. In the case of the Bank of Victoria, in particular, where it was proposed to call up a comparatively small proportion of the shareholders' liability, this Judge introduced amendments so material as these:—that the existing shareholders, in place of remaining liable only until they had paid the instalments to be called for under the scheme, should continue liable for the full amount unpaid on their shares until maturity or payment by the Bank of the sum due to its creditors at the date of reconstruction; that until that time no dividend to the holders of ordinary shares should be paid at any higher rate than 5 per cent., nor should the reserve fund be resorted to for payment of dividends; that the call proposed to be made in terms of the reconstruction scheme should be increased from £2 to £2, 10s. per share; and that the reconstructed Bank should not be at liberty to commence business until at least one-fourth part (£210,000) of a proposed issue of Preference Shares had been taken up. In delivering his judgment on this application, Mr. Justice Williams made the following observations:—

'It is incumbent on the Court, in my opinion, before sanctioning the scheme which has been brought before it, to see that the creditors are reasonably protected. The cases, as I read them, seem to point to this, that the Court is chiefly to look at the interest of creditors, to see they are reasonably protected, and to make such provision for them in the scheme as is just and equitable. Now, proceeding on this basis, and feeling as I do that the creditors are assenting to this scheme very much in the dark as to the state of their debtor's financial position, I think the scheme requires modification and amendment.'

On the other hand, Chief-Justice Madden, dealing three days later with the application for approval of the reconstruction scheme of the National Bank of Australasia, is thus reported:—

'It appeared to him more forcibly than ever that the intention of the Legislature was that in matters of this kind the majority should prevail, unless there should appear in what was resolved on something plainly unreasonable or unjust, or unless it appeared that the meeting was fraudulently held or fraudulently controlled by a majority which gave the minority no reasonable ground for asserting their views. A majority of the kind was one which was eminently to be trusted, because it could not well be a majority influenced by passion or any of the misleading considerations which sometimes subverted the wisdom of a meeting debating a matter. They were persons each of whom was looking after his own interests, and who might be fairly trusted to do what was best and most prudent, so far as he could judge, for the assertion of those interests. Unless the Act must be practically useless, it must be assumed that the meeting proceeded honestly and had determined as wisely as it could for its own interests as a body, and it also must be taken for granted that being, for the most part, men presumably of great commercial experience, they probably would be right, from a theoretical point of view, in what they resolved upon as best for their interests. He, therefore, thought that what remained for him to consider, interpreting the Act as he did, and discharging the discretion which remained to him in a prudent way, was that he should give the very greatest importance to the resolution of the majority, but that he should be on the alert to hear any suggestion of fraud, or manifest inequality, or palpable mistake in the decision arrived at by the majority.'

There appears to be a tangible distinction between what is reasonable and what is merely not 'plainly unreasonable or unjust,' and yet we find the Chief-Justice proceeds to deal with the arguments upon the scheme before him practically from the point of view of what was reasonable in the circumstances, and inserts in his order a proviso as to restriction of the shareholders' dividends which had not been demanded by the creditors. Apparently, therefore, Chief-Justice Madden, while differing in a substantial degree from Mr. Justice Williams, was not prepared to accept entirely the view that creditors should themselves be the judges of what was fair and reasonable in a scheme of arrangement.

It was in this divided state of judicial opinion that the appeal against the reconstruction scheme of the Commercial Bank of Australia came on for hearing. The grounds of appeal were ten in number, but the main objections to the scheme were these:— That creditors were bound to take preference shares; that the shares involved unlimited liability as to the notes issued; and

that all creditors were not treated equally, inasmuch as trustees and corporations were exempted from taking preference shares. After a debate extending over five days, the judgment of the full Court was given. As to the compulsory acceptance of preference shares, the Court felt bound by certain English decisions which had preceded the adoption in the colony of the provisions of the Joint-Stock Companies Arrangement Act, and by which the legality of such an arrangement had been established. The Court further held that such an arrangement was not one which reasonable men might not adopt as a choice of evils, and repelled this ground of appeal, but partly on a ground which is thus stated:— 'Whatever might have been our opinion in the first instance [*i.e.* when the scheme was submitted for approval], we cannot, even regarding only the interests that have been since created, allow ourselves to destroy the scheme, and this provision as to the taking of preference shares is its backbone, without which admittedly it cannot stand.' It was held that the supposed unlimited liability for note issue did not exist; but on the remaining point, the inequality of exempting trustees and corporations from taking preference shares which other creditors were compelled to accept, the Court sustained the appeal. Instead of allowing those privileged creditors to receive payment in full of their deposits within the time when others were to receive only two-thirds, the Court postponed payment of one-third of their claims for ten years.

The judgment was prefaced by the following observations, which show the opinion of this Court as to the mode of administering the Statute:—

'We conceive that it is the duty of the Court, when asked to sanction a compromise or arrangement of this kind, to assure itself that the scheme is legal, that it is equitable—that is to say, one which a Court of equity can conscientiously sanction, and as far as possible, with the approval of the meeting, was founded upon sufficient information. The scheme will not be legal unless a statutory majority has been obtained, nor if there is anything contrary to law in its provisions. As equality is equity, the Court must see that all creditors are treated equally as far as reasonably can be, for it may be impossible to place all the creditors on perfect equality, but there must be no oppression and no sacrifice of one class of creditors for another. As between shareholders and creditors, it must be borne in mind that what the Court has to sanction is a compromise or arrangement for the discharge of legal liabilities which cannot be immediately discharged, and the Court must be satisfied that it is an honest endeavour to protect the rights which creditors have done nothing to forfeit, while attempting to avoid the sacrifice to the debtors' property which might be useless. Within the limits before defined the

statutory majority of creditors is empowered to determine for all the creditors what is for the interest of all. The Court will not minutely criticise the details of the scheme placed before it, nor seek to discover some better plan for the protection of their interests than the creditors, who are the best judges of what they want, have been able to devise for themselves; but the creditors at the meeting must on their part remember that they have to consult the welfare of the general body of creditors, and not simply their own, or of any other class, and if they have done otherwise, then the Court steps in to remedy injustice. When thus intervening, the Court is compelled to regard the interests of all the creditors, whether present at the meeting or absent, and whether satisfied or dissatisfied. Moreover, we hold it to be of the very highest importance that before the meeting comes to any decision it should have to be furnished with full disclosure of the financial position and prospects of the company. Without this it has no accurate data on which to found a correct judgment. If an institution is unsound it is better that it should go into liquidation at once than that its subsequent downfall should inflict a more widespread disaster. If it is sound, open speaking will induce far more confidence in the stability of the institution and obtain far more supporters for it than injudicious concealment. We are not prepared to say in this case that we could in the first instance have sanctioned the scheme submitted to the Court without further inquiry, and we think it probable that if the Chief-Justice had had the advantage of discussion which has taken place before us he would have been of the same opinion. On appeal the judges have to consider whether the necessary conditions were fulfilled to justify the judge in the first instance in sanctioning the scheme submitted; but they may have a further duty to perform. They may have—as in this case they had—also to consider how far the scheme sanctioned by the Chief-Justice (even if not in all parts such as they would have sanctioned had they been in his place) can be modified, no matter to what extent the scheme had been acted upon before or even after appeal, and even though new interests had been created. They must be careful while striving to do justice to one set of persons not to inflict a greater injustice on another set who are equally innocent, and have acted on the faith of the Court's sanction.'

The other scheme which led to a conflict with its promoters is of special interest, both because it presented unique features and because it became the subject of the latest pronouncement by the English Courts on the practical interpretation of the Act of 1870.

The Directors of the English, Scottish and Australian Chartered Bank, not content with seeking delay for the realisation of assets and the discharge of the Bank's liabilities, had the idea presented

to them of converting the debts due to their creditors into a permanent stock to form the working capital of a new bank. In a circular issued a fortnight after the suspension they say:—

'We believe that the time has come for a radical change in the system on which Australian banks have been hitherto conducted, viz., the receipt of large sums of money from the public at short dates of payment, when, from the very nature of Australian business, it was impossible to lend that money on securities of a liquid character, which alone would have rendered justifiable the taking of money from the public on those terms. For this reason we are forced to the conclusion that a mere postponement of the due dates of existing deposits, either in whole or in part, would be no real remedy for the existing state of things. It might give present relief, but sooner or later the situation would have to be faced. Whatever the feeling may be in the Colonies with regard to these terminable deposits, there is little likelihood, we think, of the banks obtaining in this country any large amount of money from that source in the future; nor does it seem probable that, as the day drew nigh for the payment of these deferred claims, people would be found out there to intrust their money to a bank which had such heavy liabilities to meet. Until, therefore, the public are prepared to deposit their money with the banks in the future to a greater extent than we give them credit for, the situation could only be faced by a gradual realisation of the best and most liquid assets of the Bank. This process of realisation and repayment would, of course, interfere seriously with the Bank's position and with its earning power; and instead of being a strong institution, affording year by year to its creditors an improving security, each successive balance-sheet would bear witness to dwindling resources and a dwindling income.'

The proposal accordingly was that, on the formation of a new bank to take over the assets and liabilities of the old, creditors should receive for one-half of their claims a 4 per cent. debenture stock, and for the other half a 4½ per cent. perpetual deposit stock, the former to constitute a first and floating charge on the assets of the new bank. The debts to be thus made perpetual amounted to £5,000,000. The capital being £900,000 paid up, with a further liability of like amount, it was proposed to write off one-half of the £900,000 paid—to call up £562,500, partly by a payment down and partly by instalments—and to add £225,000 (or £5 per share) to the uncalled liability, making the total capital of the new bank £1,575,000. The scheme was afterwards materially altered. Strong objection was taken to the principle of locking up the creditors' money in perpetuity, and, on the other hand, the promoters of the scheme came to be of opinion that a bank could not be successfully constituted and carry on

business with its assets pledged as a security for two-and-a-half millions of money. There were also preferential claims to be provided for—£365,000 due to Government, and £160,000 the note issue—and it was considered imperative in the interests of the new bank to provide for payment in cash of bills and letters of credit amounting to £313,000. The amended scheme therefore provided that these sums, £838,000 in all, should be paid, and that the sums due on deposit receipts and current accounts should be met, (1) as to one-fourth, by debenture stock at 4 per cent.; (2) as to a further fourth, by terminable deposit receipts at 4 per cent., payable by five equal annual instalments, commencing in the seventh year from the date of incorporation of the new bank; and (3) as to the remaining half, by an inscribed deposit stock at 4½ per cent., payable out of the profits of each year. The debenture stock was no longer to have a floating charge on the assets of the Bank, but it and the deposit receipts were to rank *pari passu* with the claims of general creditors of the new bank, and in front of the inscribed deposit stock. In respect of the last-mentioned stock, creditors were thus destined to be postponed, not only to the remaining half of their own claims, but to any new debts contracted by the Bank, while there was nothing apparently in the scheme to prevent the Bank from creating a new class of creditors—other than 'general creditors'—who should not only rank before all else, but might even have securities given them over the whole or part of the Bank's assets.

The Bank being an English corporation, the principal liquidation was in this country, and the scheme of reconstruction fell to be dealt with under the Act of 1870, and to be submitted to the English Court for approval.

It appeared to an important section of the creditors that the scheme was not a fair one in their interests, and proxies were taken to oppose the scheme at the statutory meeting directed by the Court to be held in terms of the Act. The result was that sufficient opposition was shown to the scheme to have prevented its being carried if the votes of British creditors alone had been counted. But the promoters of the scheme had meanwhile secured the vast majority of the Australian creditors in its favour, and as arrangements had been made for admitting their votes, the scheme was declared to be carried at the meeting. It now remained for the opposing creditors to appear against the scheme when it came up for approval by the Court. This was accordingly done, the opposition being supported by creditors to a substantial amount, both in England and Scotland.

The application came on for hearing on 1st July before Mr. Justice Vaughan Williams. The learned judge expressed 'considerable doubt whether the information which was put before the

meeting was information sufficient to enable them to really deal with the matter,' and whether 'he ought not to send back this scheme for reconsideration by the creditors with the fuller information,' but he felt himself bound by the rule laid down by the Court of Appeal in the case of the 'Alabama, New Orleans, Texas, and Pacific Junction Railway Company' in 1891. Mr. Justice Williams expressly repudiated the construction which counsel for the promoters of the scheme sought to put upon words used by Lord Justice Lindley in that case—that the Courts have really no option, no discretion, but to approve the scheme, unless there was evidence which justified them in saying that the majority of the creditors were not acting *bonâ fide*, or were coercing the minority in order to promote interests adverse to those of the class whom they purported to represent; but he pointed out that two of the Lords Justices seemed to hold 'that the duty of the Court is to approve of the scheme unless there is something before it which shows it that the scheme either was not made in good faith or that it is a scheme that, so far from being fair and reasonable, is one that an intelligent and honest man, acting alone in respect of his interests, could not approve of.' It was the opinion of Mr. Justice Williams that so much could not be said against the scheme as would warrant its rejection on these principles, and accordingly he intimated that he would make an order approving of the scheme. It was open to the opposing creditors to appeal against the order, which they did; but the Court of Appeal, proceeding on substantially the same principles as Mr. Justice Williams, unanimously confirmed the approval of the scheme. Lord Justice Lindley, quoting his own words in the Alabama case as to the duty of the Court, expressed himself as follows:—

'What the Court has to do is to see, first of all, that the provisions of that Statute have been complied with, and, secondly, that the majority has been acting *bonâ fide*. The Court also has to see that the minority is not being overridden by a majority having interests of its own, clashing with those of the minority, whom they seek to coerce. Further than that, the Court has to look at the scheme and see whether it is one as to which persons, acting honestly and viewing the scheme laid before them in the interests of those whom they represent, take a view which can be reasonably taken by business men. The Court must look at the scheme and see whether the Act has been complied with, whether the majority are acting *bonâ fide*, and whether they are coercing the minority in order to promote interests adverse to those of the class whom they purport to represent, and then see whether the scheme is a reasonable one, or whether there is any reasonable objection to it, or such an objection to it as that any reasonable man might say that he could not approve of it.'

And Lord Justice Lopes, following the same case, observed—'What I understand to be decided by that case is this: that it is not sufficient for the Court to ascertain that the statutory conditions have been complied with. The Court must go farther than that, and be satisfied that the statutable majority which are to bind the dissentient minority have acted *bonâ fide*, that they have not acted adversely to those whom they professed to represent, and lastly, that the arrangement contemplated is a reasonable arrangement, such as that which a man of business would reasonably approve. With regard to the word "reasonably," it must always be borne in mind the word "reasonably" is a relative term, it means reasonably with regard to the particular circumstances of the case.'

What we may see clearly, through these varying forms of expression, is, that the disposition of the Courts in this country is to leave the adoption of schemes of arrangement practically in the hands of the creditors themselves. This would be entirely satisfactory if the creditors, as a body, could really be trusted to look after their own interest—if they were sufficiently protected against stratagem on the part of those interested in pressing a scheme upon them—and if adequate provision were made to insure that their views should be given effect to before the scheme reaches the Court. In his judgment on the English, Scottish and Australian Bank case, Mr. Justice Vaughan Williams had some forcible observations on this subject. 'I confess, for my own part,' said he, 'that I have very little belief in creditors of a company looking after their own interests. It is a matter of history that, never mind what safeguards may be suggested, never mind what statutory precautions may be given, the creditors of an individual bankrupt have never been roused to look after their own interests. One Lord Chancellor after another has a pet scheme which he thinks will really rouse the creditors to a sense of what is due to themselves, and so far educate them as to make it safe to intrust them with the management of their own affairs; but experience shows one that creditors, whether it be creditors of a company, or creditors of an individual man, never can be trusted to take care of themselves. The disjected forces of individual creditors are a mere nothing as against the consolidated forces of those who are often deeply interested in bringing about an adoption of the scheme which is presented to the creditors. Schemes are presented to the creditors, in bankruptcy and in the liquidation of companies, more often than not, I have no hesitation in saying, for the purpose of veiling some wrong that has been done, or for the purpose of serving some interest which is wholly antagonistic to the interests of the creditors.'

The history of the last-mentioned case afforded abundant illus-

tration of the comparative helplessness of creditors in face of a resolute effort, by those having the requisite advantages, to carry a reconstruction scheme of their own devising. Perhaps the creditors relied too much on the protection of the Court. They have learned to what extent the Court expected them to protect themselves.

I should have liked to refer to other matters connected with these failures and reconstructions, but time will not permit, nor is one of the most tempting of the omitted topics—the position of the companies which insured Bank deposits—at all ripe for discussion at present.

What the future of the reconstructed Banks may be it is impossible perhaps to forecast, and certainly I cannot pretend to do so. Their real financial position was not in any instance thoroughly disclosed and investigated. It was known that they had stopped payment in circumstances not necessarily implying unsoundness through banking losses or bad investments. On the other hand, it was recognised that those very circumstances rendered a forced realisation of assets impracticable without disastrous loss to all concerned, and pointed to the necessity of affording time to recuperate and to nurse the available resources. Moreover, if the Banks were to resume business successfully, it was felt to be of the utmost importance that no time should be lost in reopening their doors. The only practicable course, therefore, was to adjust as speedily as might be such schemes as would at least promise to conserve for the creditors whatever resources there were to meet their demands, leaving the future to reveal how far those resources were sufficient. The recuperative power of the Australian colonies is no doubt very great, so that we may confidently look for a large return of prosperity, and of the ability to discharge obligations which now are too heavy to be met. Then, too, we must not forget that although the sums which the Banks are liable ultimately to pay out are very large, and the payments will begin to bear heavily not many years hence, by far the larger proportion of them are due in the colonies, and to that extent the money will remain there, and doubtless much of it, if withdrawn at all, will find its way back to the Banks. It is to be hoped, too, that confidence will so far have been restored that many creditors even outside the colonies will be content to allow their money to remain. We may safely put aside as devoid of practical value much of the pessimist opinion that has appeared in the public press. In fact, we may prudently disregard highly-coloured views on either side. A certain writer has been specially loud in denunciation, not merely of Australian banks, but of everything connected with Australian finance. When we find the same gentleman venturing on ground with which we happen to be

familiar, and giving utterance to opinions which we know to be crude and ill-informed, we may not unfairly conclude that his views on other subjects are likely to be as little sound in substance as they are temperate in expression.

Australia has had a hard lesson to learn, but as she has passed through the proverbially dear school of experience, we may confidently hope that she has taken her lesson to heart, and will avoid in the future those causes which have led her into such grave and serious trouble.

On Probability and Chance, and their connection with the Business of Insurance.

BY

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SYLLABUS.

Professor Chrystal's Address on Probability.—Different authors use the word, Probability, with different meanings.—Definitions of De Moivre and Todhunter.—In the long run the numbers of times which an event will happen and fail, are proportional to the chances of happening and failing.—Probability that, when a coin is tossed a large, but finite, number of times, the number of heads thrown will never be equal to that of the tails.—After a long run of heads, is tail more likely to occur at the next trial?—Three objections to Professor Chrystal's definition.—When *à priori* considerations are applicable, they are a safer guide than experience.—Results, given by De Morgan, of tossing a coin until 2048 heads are got.—Probability of drawing an ace from a pack of cards.—Result of 2173 trials with a pack of cards.—Quotations from Dr. Venn and the late Bishop of Carlisle.—Definition of Lubbock and Drinkwater.—Does probability exist in the abstract, or is it only relative?—De Morgan's definitions of Moral and Mathematical Probability.—Mr. Crofton's article in the *Encyclopædia Britannica*.—Is $\frac{1}{2}$ the probability of an event about which we have no knowledge whatever?—Could an omniscient Being foretell the results of 100 tosses of a coin?—Is there such a thing as 'chance'?—Quotation from Jevons, to the effect that everything happens according to invariable law.—How far does Providence regulate events?—Quotations from Proverbs, Shakespeare, Cicero, and Tacitus.—Improper use of the word, Probability, by Crofton.—What is meant by the probability of a past event?—Discussion of a remarkable bank balance.—To speak of the probability of a newly discovered planet rotating from East to West, is an abuse of language.—Discussion of the tradition question in Probabilities.—The old name, *Doctrine of Chances*, is preferable to the new one, taken from the French, *Theory of Probabilities*.—The word *average* is preferable to the vague one, *mean*.—Dr. Venn's misuse of the word *average*.—It is permissible to speak of the probability that it will snow on 1st January next, but not of the probability that there will be an eclipse of the moon next year.—The business of insurance has little or nothing to do with the mathematical calculation of chances.

On Probability and Chance, and their connection with the Business of Insurance.

(*Read before the Actuarial Society of Edinburgh*, 1st *December* 1892.)

GENTLEMEN,—This Society was privileged during a recent Session to listen to an eloquent and highly original address by Professor Chrystal:—'On some fundamental Principles in the Theory of Probability.' The value of such addresses, dealing, as Professor Chrystal's did, with questions on which wide differences of opinion exist, is not to be measured simply by the amount of information they contain; they serve a much more useful purpose, by leading those who hear them, or afterwards read them, to think out for themselves the various questions discussed. Speaking for myself, I have to thank the Professor, not only for a pleasant evening spent in listening to him, but for causing me to consider carefully the fundamental principles of the theory with which, as Actuaries, we are all supposed to be so much concerned. I have found the subject a most interesting one, and I propose to lay before you this evening, some of the reflections that have occurred to me, and the conclusions at which I have arrived, after carefully studying what has been written on the subject by a number of authors. I cannot undertake to give you a complete account of the very divergent views of the Theory of Probabilities that have been taken by different writers of repute; but I believe that, in my review of the arguments and opinions of those authors whose writings happen to have come under my notice, I shall deal with every point as to which any difference of opinion has existed.

Much of this difference of opinion has, I believe, arisen from different authors using the word 'probability' with different meanings; and my recent study of the subject has led me to the conclusion, that very frequently the same author has used the word with different meanings. Mr. Crofton, who has written the article 'Probability' in the *Encyclopædia Britannica* (9th Edition), says that the poverty of language obliges us sometimes to use one

term in the same context for different things: 'probability, referring to the same event, may sometimes mean its probability *before* a certain occurrence, sometimes *after*. . . . Again, it may mean the probability of the event according to one source of information, as distinguished from its probability taking everything into account'; and he adds: 'It is easy to see that such employment of terms in the same context, must prove a fruitful source of fallacies; and yet, without wearisome repetitions, it cannot always be avoided.' I am surprised to find a mathematician expressing himself thus; for one great advantage of a mathematical training, is that it accustoms us to use words in one precise sense, and no other; and I consider it inexcusable in any one who has had such training, to use language in this loose way; to say, for instance, that the so-called 'probability of an event, according to one source of information', is *the* probability of the event. Mr. Crofton does not give any definition of what he means by the probability of an event, either before or after a certain occurrence; and we are left to conjecture what he means by the word. This is clearly a most inconvenient course; and I will, therefore, in the first instance, invite your attention to the definitions of probability that have been given by some other authors, and examine whether each author consistently uses the word with the meaning that his definition assigns to it.

The first definition I will consider is that of De Moivre, whose name is familiar to you as the author of a theoretical law of mortality, which was for long the basis of all life contingency calculations. He says (*Doctrine of Chances*, 3rd Edition, 1756, p. 1): 'The probability of an event is greater or less, according to the number of chances by which it may happen, compared with the whole number of chances by which it may either happen or fail. Wherefore, if we constitute a fraction, whereof the numerator be the number of chances whereby an event may happen, and the denominator the number of all the chances whereby it may either happen or fail, that fraction will be a proper designation of the probability of happening.'

The definition in Todhunter's well-known *Algebra* (3rd Edition, 1866, p. 438) is substantially the same, though differently worded:—

'If an event may happen in a ways, and fail in b ways, and all these ways are equally likely to occur, the probability of its happening is $\frac{a}{a+b}$, and the probability of its failing is $\frac{b}{a+b}$.'

The event contemplated in these definitions is a future event, such as the drawing of a white ball out of a bag containing white and black balls; and we should, I think, before we extend the

idea to other kinds of events, be very careful to make sure that the definition is properly applicable to them. Professor Chrystal seems to imply this when he gives his readers the very useful caution (*Algebra*, ii. 541) that the event must be one which can happen, or be conceived to happen, a great many times.

It is implied in the above definitions, that in the long run the numbers of times which the event will happen and fail respectively, are proportionate to the respective chances; that is to say, if we could make an infinite number of trials, without the circumstances being altered, the number of times in which the event happens, would bear to the number of times it fails, the ratio $a : b$. If, in tossing a coin, the chances of head and tail turning up are equal, then they must in the long run turn up equally often. If, in throwing a die, each of the faces is equally likely to come uppermost, then in the long run they will turn up equally often; for, if they would not turn up equally often in the long run, the chances in favour of them are not equal, or they are not equally likely to occur; and similarly with other events. Here it is not to be supposed that the agreement of any finite experience with theory will be exact; if we toss a coin a very large number of times, N, we are not to suppose that it will fall head uppermost exactly $N/2$ times, but only that the deviation from $N/2$ will be so small that it may be neglected. This I hold to be a matter of definition; but it does not justify what some authors say,—that the larger the number of trials or observations we make of the event, the more nearly will the ratio of the happening to the failing, approximate to $a : b$. This is quite true; but it must be proved, and not taken for granted. It is quite clear that, if we toss a coin a very large (but finite) number of times, then, whether the chances of getting head and tail are equal or unequal, there is always a chance that we may get head at every one of the trials, however numerous. Again, assuming that the chances of getting head and tail at any trial are equal, if we make a very large number of trials, recording carefully the numbers of heads and tails that we get, we may expect that at various points of the process, the total number of heads got will be exactly equal to the total number of tails; but there is a possibility that the numbers may never be equal, however large the (finite) number of trials is.

It will repay us to consider this point more closely. If we make two trials, we must get one of four results, which may be represented by *HH*, *HT*, *TH*, *TT*; and all of these are equally likely. If our result is *HT* or *TH*, we have got as many heads as tails; hence there is an even chance of getting the number of heads equal to the number of tails in the two trials, or the probability that we shall do so is $\frac{1}{2}$. The probability is also

$\frac{1}{2}$, that we shall not do so, but shall get either *HH* or *TT*. If, having got one or the other of the latter two, we make two more trials, it is clear that we must then have got one of the following results,—*HHHH, HHHT, HHTH, HHTT, TTHH, TTHT, TTTH, TTTT*, eight in number, all of which are equally likely. If we get either of the two centre results, *HHTT* or *TTHH*, the numbers of heads and tails are equal; but they are unequal if we get either of the six others: hence the probability that, in the circumstances supposed, the numbers will not be equal at the end of our second set of two trials, is $\frac{6}{8}$ or $\frac{3}{4}$. Combining this with the probability, $\frac{1}{2}$, that we shall have such a second set, we find that the probability is $\frac{3}{8}$ that, if we make four trials, we shall not have got the numbers of heads and tails equal, either after two or after four trials. We may look at the probability in a different way, which is more convenient if we wish to carry the investigation further. In four trials there are sixteen possible results, all of which are equally likely; and two of these, namely *HHTT, TTHH*, give us equal numbers of heads and tails for the first time at the end of four trials: hence the probability of getting equal numbers for the first time at the end of four trials, is $\frac{2}{16}$ or $\frac{1}{8}$. Adding to this the probability, $\frac{1}{2}$, of getting equal numbers at the end of two trials, we find that $\frac{5}{8}$ is the probability that we shall get equal numbers, either at the end of two trials or at the end of four; and therefore the probability that we shall not have got equal numbers, either at the end of two trials or of four, is $\frac{3}{8}$, as we found above. I have continued the calculations further, and obtained the results shown in the following table:—

n	Probability that we shall get equal numbers of heads and tails for the first time at the nth trial.	Probability that in n trials we shall get equal numbers of heads and tails, once or more.	Probability that in n trials we shall never get equal numbers of heads and tails.
2	·50000	·50000	·50000
4	·12500	·62500	·37500
6	·06250	·68750	·31250
8	·03906	·72656	·27344
10	·02734	·75390	·24610
12	·02051	·77441	·22559
14	·01611	·79052	·20948
16	·01308	·80360	·19640
18	·01091	·81451	·18549
20	·00927	·82378	·17622

We see from this that the probability that in twenty trials we shall have got equal numbers of heads and tails at least once, is

On Probability and Chance, and their connection with the Business of Insurance.

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$\frac{1}{2}$, that we shall not do so, but shall get either *HH* or *TT*. If, having got one or the other of the latter two, we make two more trials, it is clear that we must then have got one of the following results,—*HHHH*, *HHHT*, *HHTH*, *HHTT*, *TTHH*, *TTHT*, *TTTH*, *TTTT*, eight in number, all of which are equally likely. If we get either of the two centre results, *HHTT* or *TTHH*, the numbers of heads and tails are equal; but they are unequal if we get either of the six others: hence the probability that, in the circumstances supposed, the numbers will not be equal at the end of our second set of two trials, is $\frac{6}{8}$ or $\frac{3}{4}$. Combining this with the probability, $\frac{1}{2}$, that we shall have such a second set, we find that the probability is $\frac{3}{8}$ that, if we make four trials, we shall not have got the numbers of heads and tails equal, either after two or after four trials. We may look at the probability in a different way, which is more convenient if we wish to carry the investigation further. In four trials there are sixteen possible results, all of which are equally likely; and two of these, namely *HHTT*, *TTHH*, give us equal numbers of heads and tails for the first time at the end of four trials: hence the probability of getting equal numbers for the first time at the end of four trials, is $\frac{2}{16}$ or $\frac{1}{8}$. Adding to this the probability, $\frac{1}{2}$, of getting equal numbers at the end of two trials, we find that $\frac{5}{8}$ is the probability that we shall get equal numbers, either at the end of two trials or at the end of four; and therefore the probability that we shall not have got equal numbers, either at the end of two trials or of four, is $\frac{3}{8}$, as we found above. I have continued the calculations further, and obtained the results shown in the following table:—

n	Probability that we shall get equal numbers of heads and tails for the first time at the nth trial.	Probability that in n trials we shall get equal numbers of heads and tails, once or more.	Probability that in n trials we shall never get equal numbers of heads and tails.
2	·50000	·50000	·50000
4	·12500	·62500	·37500
6	·06250	·68750	·31250
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10	·02734	·75390	·24610
12	·02051	·77441	·22559
14	·01611	·79052	·20948
16	·01308	·80360	·19640
18	·01091	·81451	·18549
20	·00927	·82378	·17622

We see from this that the probability that in twenty trials we shall have got equal numbers of heads and tails at least once, is

·82378; and therefore the probability that in twenty trials we shall never have got equal numbers of heads and tails, is ·17622; that is to say, if we have 100 sets of 20 trials each, we may expect that in 17 or 18 of these sets we shall never have had the number of heads equal to the number of tails. Of course in making an experiment of this kind, if at any point in the set of trials we get the number of heads and tails equal, it is useless to continue the set further; and we should begin a new one.

I have dwelt at length upon this simple question, in order to impress on your minds that, although by our supposition heads will occur as often as tails in the long run, yet it may happen that in a succession of many trials we shall always get head. The question now naturally suggests itself whether, after we have got a long succession of heads, it is not necessary, in order to secure the ultimate equality of numbers, that tail should occur more frequently than head in the remaining trials; or, to put it in another way, whether, after getting a long succession of heads, tail is not more likely to occur than head at the next trial. This is, of course, inconsistent with our original supposition, that head and tail are equally likely at each trial; but the apparent anomaly is got rid of when we remember that it is not until the number of trials is infinite, that we are entitled to say that the numbers of heads and tails will be equal; and in that case any finite difference of the numbers that we may meet with, will vanish in comparison with the infinite number of trials supposed to be made.

In the two definitions I have quoted, nothing is said as to the way in which we are to ascertain the numerical values of the chances for or against the event, or the values of a and b; but Professor Chrystal tells us:—'If, on taking any very large number, N, out of a series of cases in which a event A is in question, A happens on pN occasions, the probability of the event A is said to be p'. He admits, however, that this definition is not altogether satisfactory, and that it would be improved by saying 'If, *on the average*, in N out of a series of cases,' etc.; but, even as thus amended, the definition seems to me unsatisfactory, for three reasons. In expounding the Theory of Probability it is no more necessary to say how we are to ascertain the numerical value of a probability, than it is necessary in teaching Euclid to say how we are to ascertain the lengths of the lines about which we reason. If c is the length of the hypothenuse of a right-angled triangle, and a, b, the lengths of the other sides, then $a^2+b^2=c^2$. If we actually measure the sides, with the greatest accuracy possible, several times in succession, we may perhaps find that we never twice get exactly the same results, and that none of the results we get exactly satisfy the above equation. Nevertheless, the equation is true independ-

ently of our being able to find the exact values of a, b, and c. Similar remarks apply to the following proposition in the Theory of Probabilities: 'If p, p', be the respective probabilities of two independent events, pp' is the probability of the happening of both events' (*Todhunter*, p. 442). This is true, whether we can accurately determine the values of p and p' or not; and it is therefore better to say nothing in our definition as to the way in which we are supposed to determine their values.

A second objection to the definition is that in the above-quoted proposition as to the multiplication of probabilities, we cannot give to the word probability the exact meaning attributed to it by the Professor's definition, but are compelled to alter the meaning more or less. He states the proposition in the following way, (p. 548): 'If the respective probabilities of n independent events be $p_1, p_2, \ldots\ldots, p_n$, the probability that they all happen on any occasion in which all of them are in question, is $p_1 p_2 \ldots\ldots p_n$.' Here we shall find on examination that the word probability, in the second clause of the proposition, is used with a meaning essentially different from its meaning in the first clause. All that we need do to prove this, is to eliminate the word probability from the proposition, by substituting for it the explanation of it given in the definition. The proposition then becomes:— 'If we have found by numerous observations that n independent events occur in numbers proportional to the fractions $p_1, p_2, \ldots, p_n$, then *we have found* that the occasions on which all n events occur, are to the total occasions on which they are in question, in the ratio $p_1 p_2 \ldots p_n$ to 1.' This is nonsense; but, of course, it is not what the writer means. He clearly intends something of the following kind:— 'If we have found by numerous observations that n independent events occur in numbers proportional to the fractions $p_1, p_2, p_3, \ldots, p_n$, then, if we make a large number of observations, N, *we shall find* that all n events will happen on $p_1 p_2 \ldots p_n N$ occasions. This, however, is certainly not true; because, however large N may be (remaining finite) the number of occasions on which all n events happen, will very rarely be exactly equal to $p_1 p_2 \ldots p_n N$. If $p_1, p_2, \ldots$ are represented as fractions reduced to their lowest terms, and are then equal to $\frac{a_1}{a_1+b_1}, \frac{a_2}{a_2+b_2}, \ldots \frac{a_n}{a_n+b_n}$, and M is the L. C. M. of a_1+b_1, $a_2+b_2 \ldots$, then all the events cannot possibly happen on $p_1 p_2 \ldots p_n N$ occasions, unless N is a multiple of M; and if N is a multiple of M, and many sets of N observations are made, the number of occasions on which all the events happen, will very seldom be exactly $p_1 p_2 \ldots p_n N$. Professor Chrystal gives as a corollary to his definition: 'If the probability of an event be p, then out

of N cases in which it is in question, it will happen pN times, N being any very large number.' This is a statement which, for similar reasons, we cannot accept.

A third objection to the definition is that it does not admit of the possibility of determining the probability p, by *à priori* considerations. This would be no objection if Professor Chrystal held, like Dr. Venn (*Logic of Chance*, ch. iv.), the extreme, not to say ridiculous notion, that probability is always to be determined by observation, and never by *à priori* considerations. But the Professor is clearly not of this opinion; for he says (p. 540): 'There are some cases where the circumstances are so simple, that the probability of the event can be deduced, without elaborate collecting and sifting of observations, merely from our definition of the circumstances under which the event is to take place.'

My own view with regard to this point is that *à priori* considerations, when they are applicable, are a very much safer guide than experience. As the simplest instance, let us consider the case of a coin repeatedly tossed in the air, so as to rotate many times before it falls; and let us suppose that it falls on a horizontal surface, of such a nature that the coin cannot rebound, and must lie with one of its sides unmistakably uppermost. Then I say that, independently of all experience, the chances of head and of tail turning up, are equal; and the probability of one of them, say head, turning up, is $\frac{1}{2}$. It is not necessary, in my opinion, to make any stipulation as to the coin being symmetrical or accurately balanced; for I cannot see that this would produce any influence on the result: nor is it necessary to stipulate that in starting the coin, head and tail shall be placed uppermost the same number of times. The determining circumstance will be the exact force with which the coin is propelled by the thumb of the operator; and as the coin is to rotate rapidly and frequently, the very slightest difference in the force of propulsion, will cause the coin to make one rotation more or less, and thus change the side which falls uppermost. Professor Chrystal tells us that a machine could be constructed, which would infallibly toss the coin so as to make it always fall head up, provided the coin were always placed the same way into the machine; but the human hand is not such a machine, and I believe it would be impossible for any experimenter to regulate the force of propulsion he exerts so exactly, that the coin shall rotate a certain large number of times, and neither more nor less, at each trial. Hence I am satisfied that the chances in favour of head turning up, are exactly the same as those in favour of tail; and that, therefore, the probability of getting head is exactly $\frac{1}{2}$. But if we attempt to determine the probability by trial, what will be the result? We must make a very large number of trials, N, and if we

get H heads, then, according to Professor Chrystal's definition, H/N is the probability of getting head. If we take the average of many sets of trials, as suggested by the Professor, this merely amounts to increasing the number of trials. Suppose that we make m sets of trials, each containing N trials, and that the numbers of heads got in these sets are $H_1, H_2, \ldots H_m$, respectively; then we get m values of p, namely

$$\frac{H_1}{N}, \frac{H_2}{N}, \ldots\ldots \frac{H_m}{N},$$

and the average of these is

$$\frac{1}{m}\left(\frac{H_1}{N}+\frac{H_2}{N}+\ldots\ldots+\frac{H_m}{N}\right),$$

which is equal to $\dfrac{H_1+H_2\ldots\ldots+H_m}{mN}$,

and is precisely the same as if we take the result of the mN trials, without dividing them into m sets of N each. By such a process we should get m different values of p, some $>\frac{1}{2}$, and some $<\frac{1}{2}$; no two of them perhaps being exactly equal.

Professor De Morgan has given in his *Formal Logic* (p. 185) the result of two trials of this kind, that were made independently. On the one occasion, the coin was tossed 4040 times, with the result that there were 1992 tails thrown, and 2048 heads; and on the other, the coin was tossed 4092 times, and there were 2044 tails and 2048 heads. (In each case the coin was tossed until 2048 heads were got.) The figures give the probability of throwing head equal to ·50693 and ·50049 respectively, and suggest that the true probability is ·5; but, even in this simple case, we see that such observations as are contemplated in Professor Chrystal's definition, can never give us with certainty the true value we are in search of.

Let us now consider a less simple case. An ordinary pack of cards contains 52, of which 4 are aces: hence the probability that, if we draw a card at random from the pack, it will be an ace, is $\frac{1}{13}$. Assuming that any one card is as likely to be drawn as any other, there can be no doubt that the number of cases which are favourable to our drawing an ace, is 4; and the total number of cases is 52; so that the probability is $\frac{4}{52}$, or $\frac{1}{13}$. But, if we attempt to determine the probability by experiment, shall we ever get this result? It will be noticed in the first place that it is impossible for us to get this exact value unless N is a multiple of 13; and if we were in complete ignorance of the constitution of a pack of cards, so that we did not know even the number it contains, but only that it contains some which are aces, and some which are not; and we attempted to determine the

proportion of the whole which are aces, by repeatedly shuffling and cutting the pack, and drawing a card; an immense number of trials would have to be made, before we should obtain a fair approximation to the true ratio; and it is in the highest degree improbable that we should ever arrive at the true number. In fact, before we could do so, the cards might be so altered by long handling, that it would no longer be true that any one was as likely to be drawn as any other.

I have made a trial of this kind, shuffling and cutting a pack of cards repeatedly, and recording the succession of aces and other cards: or to speak more precisely, I had two assistants, who handled two packs of cards, while I recorded the results. The process was continued until 200 aces had been turned up, and this was the case when the cards had been cut 2173 times. This would give the probability of getting an ace as equal to ·0920, or about 1 in 10·9. This number of trials, 2173, seems fairly entitled to be called large; but instead of giving us the probability, as it should have done according to Professor Chrystal's definition, it gives us a very insufficient approximation to the real probability, 1 in 13 or ·07692. If we divide the 2173 observations into 4 groups, each containing 50 aces, the numbers in these groups are 626, 523, 480, 544, respectively; and the probabilities deduced from these several groups, are ·0799, ·0956, ·1042, and ·0919, respectively. The average of these 4 values is ·0929, which is nearly, but not quite, the same as we got by taking the whole 2173 observations together.

Observations of this kind are useful, not only to determine the probability of an event, but also to illustrate the subject of runs of luck. My observations were continued until I got 200 aces; and we may consider the 2173 observations as divided into 200 sets, each ending with an ace. This being the case, the probability of getting an ace at the beginning of a set is $\frac{1}{13}$; the probability of getting one as the second in a set, is $\frac{12}{13} \times \frac{1}{13}$; as the third in a set is $(\frac{12}{13})^2 \times \frac{1}{13}$; and so on; and multiplying each of these fractions by 200, we get the probable numbers of aces that will be the 1st, 2nd, 3rd, etc., in a set, or the probable numbers of sets which consist of 1, 2, 3, etc., trials. These numbers are given in column (7) of the following table, the observed numbers being given in the previous column:—

Number of trials in a set (n).	Numbers of sets containing n trials.					
	First 50 sets.	Second 50 sets.	Third 50 sets.	Fourth 50 sets.	Total.	Expected numbers.
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1	1	4	1	2	8	15·4
2	5	6	4	6	21	14·2
3	8	3	5	4	20	13·1
4	2	...	6	6	14	12·1
5	3	3	5	1	12	11·2
6	2	4	2	4	12	10·3
7	3	2	4	4	13	9·5
8	2	4	3	...	9	8·8
9	...	4	1	4	9	8·1
10	1	1	4	1	7	7·5
11	3	3	2	1	9	6·9
12	...	2	1	1	4	6·4
13	1	...	2	...	3	5·9
14	3	...	...	2	5	5·5
15	2	4	...	...	6	5·0
16	...	1	...	...	1	4·6
17	...	1	...	2	3	4·3
18	...	...	3	...	3	3·9
19	1	...	...	3	4	3·6
20	1	2	3	...	6	3·4
21	...	1	1	2	4	3·1
22	1	...	...	...	1	2·9
23	...	...	...	1	1	2·7
24	...	1	...	...	1	2·4
25	2	...	1	...	3	2·2
26	...	...	...	1	1	2·1
27	1	1	...	1	3	1·9
28	1	...	...	1	2	1·8
29	3	...	1	1	5	1·6
30	...	...	...	...	...	1·5
31	1	...	...	1	2	
32	...	...	...	...	...	
33	...	1	...	...	1	
34	1	...	...	...	1	
35	1	1	...	...	2	
36	...	...	...	...	...	
37	...	1	...	...	1	
38	1	...	...	...	1	} 18·1*
39	...	...	...	...	...	
40	...	...	...	...	...	
41	...	...	...	...	...	
42	...	...	...	...	...	
43	...	...	...	1	1	
44	...	...	...	...	...	
45	...	...	1	...	1	
	50	50	50	50	200	200·0

* For all values of n from 31 to ∞.

We do not find here so much regularity as we are led to expect by some writers, for instance Dr. Venn, who says (*Logic of Chance*, p. 5, 3rd ed.) : 'So long as we confine our observation to a few throws at a time, the series seems to be simply chaotic. But when we consider the result of a long succession, we find a marked distinction; a kind of order begins gradually to emerge, and at last assumes a distinct and striking aspect.' I believe, in fact, that such writers, not having any actual figures before them, exaggerate the ultimate degree of regularity that may be expected. This example seems sufficient to prove that if, as a matter of business, we had to estimate the probability of drawing an ace from a pack of cards, our proper course would not be to make a large number of trials, and then be guided by the results; but rather to examine carefully the constitution of the pack, for the purpose of determining (1) what proportion of the cards are aces, and (2) whether each of these is as likely to be drawn as any other card; in fact, to be guided by *à priori* reasoning rather than by experience. Another writer who has made the same mistake as Dr. Venn, is the late Bishop of Carlisle, who in his article on *Probability and Faith* in the *Contemporary Review* (January 1892), asks: 'What is the probability of drawing a particular card—say the ace of diamonds out of a pack?' and replies quite correctly, that the odds are 51 to 1 against doing so; but adds incorrectly, 'What is really meant is that, if you shuffle and draw a very large number of times,—say 52,000, the ace of diamonds will be the card drawn 1000 times: in fact, each card in the pack will be drawn the same number of times.' I need not point out to you that this is very far from being a correct statement of the case; that in fact, the probability of drawing the ace of diamonds exactly 1000 times, is extremely small. Still more erroneous are his remarks on the business of insurance, when he says: 'Of course with a small number of insured,* an office' (he is speaking of a life office) 'might come to grief; but, with a large number, the results will be quite certain to be those which are given by the calculated tables.' This, as you all know, is very far from the truth; for it is a very rare thing indeed for the deaths in a life office to be equal in number, or amount, to those 'given by the calculated tables'. They do not even fluctuate above and below the expected numbers in a succession of years; but the constant experience of well-conducted offices is, that the actual deaths are sensibly, and sometimes considerably, less than the expected. If every life that proposes to an office were accepted, the mortality would almost certainly exceed the tabular rate; but, by the exercise of judgment in the rejection of doubtful risks, most offices succeed in reducing the rate of

* The word used (incorrectly) in the Essay, is 'insurers'.

mortality among their insured, for several years after admission, below the tabular rate; and very greatly below it in the two or three years immediately after admission.

I will now consider the definition of probability given in the *Treatise on Probability* by Lubbock and Drinkwater. They say (§ 4) 'The probability of an event is the ratio of the favourable cases to all the possible cases which, *in our judgment*, are similarly circumstanced, with regard to their happening or failing.' Here it is to be noticed that the words 'in our judgment' have been introduced; and, consistently with this, we are told (in § 9) that 'Probability does not exist in the abstract, but always refers to the knowledge possessed by some particular individual.' This being the case, different persons, possessed of different degrees of knowledge, will form different judgments; and it is clear that the fraction deduced from the judgment of any one of these, has no right to be called *the* probability of the event, and should rather be called the *estimated* or *supposed* probability. In some other respects the language of the treatise is not so precise as could be wished. For instance, in the consideration (§ 11) of the four possible cases which can occur when a coin is tossed twice, *HH*, *HT*, *TH*, *TT*, it is said 'These are the only cases possible; and if we are ignorant of any cause tending to make the piece fall on one side rather than the other, they are all similarly circumstanced, and therefore the probability of each case is $\frac{1}{4}$.' Here it is clear that the fact of our being ignorant of any cause tending to make the coin fall on one side rather than the other, is no proof that there is no such cause in existence; and therefore the words 'in our judgment' should have been added after 'similarly circumstanced'. Let us now apply to this definition the same test as we applied to Professor Chrystal's. It is stated in § 15 of the treatise that the probability of the concurrence of any two independent events is equal to the product of the probabilities of each, considered separately; or, putting p and p' to represent the separate probabilities, the probability of the concurrence of the two events is pp'. If in this proposition we substitute for the word 'probability' the definition given in the treatise, we shall get a proposition such as the following: If p is, in our judgment, the ratio of the favourable cases to all the cases, for one event; and p' is, in our judgment, the similar ratio for another independent event; then pp' is, in our judgment, the ratio which the number of the cases favourable to the concurrence of the two events, bears to the total number of cases. This, of course, is an absurd proposition; but it is not what is meant by the authors; and therefore in this case also the word 'probability' in the proposition, has not the same meaning as in the definition. In the latter parts of the

treatise it seems to me that the authors quietly drop out of sight the idea that probability depends on our judgment; for instance, we are told (§ 28) that if p and q are the probabilities of two conflicting events, (so that $p+q=1$), and a large number of trials are made, 'the event most likely to happen is a combination in which the number of repetitions of p and q, is proportional to the simple probability of the happening of each'; and in § 29 that 'the abstract probability' of this most likely event, diminishes as the number of trials increases. These propositions are, of course, quite true; but it will be seen that we cannot attach to the word 'probability' in them, the exact meaning given to it in the definition.

I have said that in Lubbock and Drinkwater's Treatise, the idea, that Probability does not exist in the abstract, but is only relative, —which is strongly insisted upon at the outset, is afterwards allowed to drop out of sight; and I imagine that in the mathematical treatment of the subject this is absolutely necessary. Professor De Morgan, if I understand him aright, has felt this necessity. In his preliminary disquisition on the meaning of Probability (*Encyclopædia Metropolitana*, page 394) he tells us 'It is wrong to speak of anything being probable or improbable in itself. The same thing may be really probable to one person, and improbable to another.' Then on p. 396 he gives the following definitions:—

'1. *Moral Probability* is the impression existing with regard to the happening of an event, depending upon the constitution of the individual, his knowledge of the circumstances, and the effect the event will produce.

'2. *Mathematical Probability* is the moral probability in that case, and in that case only, in which the mind is disposed to consider equal successive changes of favourable circumstances into unfavourable, or *vice versâ*, as of equal importance; not regarding certainty as possessing any peculiar value, more than would be derived from its being the sum of certain probabilities, and therefore of course larger than either.

'3. In future, *probability* means *mathematical probability*, unless the contrary be specified. . . .

'5. The probability *in favour of* an event is such a proportion of 1 as the number of *favourable* cases is of the whole; all the cases being considered as equally probable.'

The definition thus given is exactly the same in effect as those of De Moivre and Todhunter quoted above, except that it says 'all the cases being *considered* equally probable' instead of '*being* equally probable'; and this is, I think, a defect in the definition. De Morgan gives a different definition in his *Formal Logic* (p. 184):

'When all the things that can happen can be resolved into a number of equally probable (or credible) cases, some favourable and some unfavourable to the event under consideration, then the fraction which the favourable cases are of all the cases, measures the probability (or credibility) of the arrival of the event.' But a few lines lower down he says, speaking of balls to be drawn from an urn: 'It is assumed that we know them to be equally likely to be drawn; which here means no more than that we know nothing to the contrary.' On the same page, however, he says: 'Events will in the long run happen in numbers proportional to the objective probabilities under which the trials are made'; and he thus recognizes the existence of a real, or inherent, or objective probability, which elsewhere he seems strongly to deny.

The last work to which I shall draw your attention is that of Mr. Crofton which I have already mentioned. He commences by saying: 'The Mathematical Theory of Probability is a science which aims at reducing to calculation, where possible, the amount of credence due to propositions or statements, or to the occurrence of events, future or past; more especially as contingent or dependent upon other propositions, or events, the probability of which is known.'

Presently he says:—'The probability of an event which is as likely as not to happen, is represented by the fraction $\frac{1}{2}$. It is to be observed that $\frac{1}{2}$ will be the probability of an event about which we have no knowledge whatever; because, if we can see that it is more likely to happen than not, or less likely than not, we must be in possession of some information respecting it.' This seems to me an extraordinary statement. It implies that if there is a bag containing white and black balls, and we know nothing as to their relative numbers, then the probability of drawing a white ball is $\frac{1}{2}$; and I do not hesitate to say that it is entirely erroneous. All that we can say in the case supposed, is that the probability is entirely unknown to us.

In his next paragraph he says:—'Probability, which necessarily implies uncertainty, is a consequence of our ignorance. To an omniscient Being there can be none.' This is a proposition to which, for reasons which I shall presently state, I cannot give my assent. Mr. Crofton continues:—'Why, for instance, if we throw up a shilling, are we uncertain whether it will turn up head or tail? Because the shilling passes in the interval, through a series of states, which our knowledge is unable to predict or to follow. If we knew the exact position and state of motion of the coin as it leaves our hand, the exact value of the final impulse it receives, the laws of its motion as effected by the resistance of the air and gravity, and finally the nature of the ground at the exact

We do not find here so much regularity as we are led to expect by some writers, for instance Dr. Venn, who says (*Logic of Chance*, p. 5, 3rd ed.) : 'So long as we confine our observation to a few throws at a time, the series seems to be simply chaotic. But when we consider the result of a long succession, we find a marked distinction; a kind of order begins gradually to emerge, and at last assumes a distinct and striking aspect.' I believe, in fact, that such writers, not having any actual figures before them, exaggerate the ultimate degree of regularity that may be expected. This example seems sufficient to prove that if, as a matter of business, we had to estimate the probability of drawing an ace from a pack of cards, our proper course would not be to make a large number of trials, and then be guided by the results; but rather to examine carefully the constitution of the pack, for the purpose of determining (1) what proportion of the cards are aces, and (2) whether each of these is as likely to be drawn as any other card; in fact, to be guided by *à priori* reasoning rather than by experience. Another writer who has made the same mistake as Dr. Venn, is the late Bishop of Carlisle, who in his article on *Probability and Faith* in the *Contemporary Review* (January 1892), asks: 'What is the probability of drawing a particular card—say the ace of diamonds out of a pack?' and replies quite correctly, that the odds are 51 to 1 against doing so; but adds incorrectly, 'What is really meant is that, if you shuffle and draw a very large number of times,—say 52,000, the ace of diamonds will be the card drawn 1000 times: in fact, each card in the pack will be drawn the same number of times.' I need not point out to you that this is very far from being a correct statement of the case; that in fact, the probability of drawing the ace of diamonds exactly 1000 times, is extremely small. Still more erroneous are his remarks on the business of insurance, when he says: 'Of course with a small number of insured,* an office' (he is speaking of a life office) 'might come to grief; but, with a large number, the results will be quite certain to be those which are given by the calculated tables.' This, as you all know, is very far from the truth; for it is a very rare thing indeed for the deaths in a life office to be equal in number, or amount, to those 'given by the calculated tables'. They do not even fluctuate above and below the expected numbers in a succession of years; but the constant experience of well-conducted offices is, that the actual deaths are sensibly, and sometimes considerably, less than the expected. If every life that proposes to an office were accepted, the mortality would almost certainly exceed the tabular rate; but, by the exercise of judgment in the rejection of doubtful risks, most offices succeed in reducing the rate of

* The word used (incorrectly) in the Essay, is 'insurers'.

in propelling the coin, or throwing the die, or as to the particular way in which he will draw a ball from the bag, and so on. In these and similar cases it is, I think, clear that the events are not regulated by law. They are, also, not regulated by the will of the operator; for he does not know how the choice he makes will influence the event. They, therefore, in the strict meaning of the word, happen by chance. Nevertheless, when we have a large number of such events, they are, in the aggregate, subject to certain laws; and, in my opinion, one of the most important objects of the Theory of Probabilities, is to determine these laws.

The remark that nothing happens by chance, may be made by two different classes of thinkers; first, those who say that everything happens according to invariable law; and next, those who say that the things which do not happen by law are regulated by Providence. The former view, in its more extreme form, seems to have been held by Jevons, who, although usually a very sensible writer, says:—'There is really no such thing as chance, regarded as producing and governing events. . . . There is no doubt in lightning as to the part it shall strike; in the greatest storm there is nothing capricious; not a grain of sand lies on the beach but infinite knowledge would account for its lying there; and the course of every falling leaf is guided by the principles of mechanics which rule the motions of the heavenly bodies. Chance, then, exists not in nature; and cannot coexist with knowledge: it is merely an expression, as Laplace remarked, for our ignorance of the causes in action, and our consequent inability to predict the result, or to bring it about infallibly. In nature the happening of an event has been predetermined from the first fashioning of the universe. Probability belongs wholly to the mind.'* In this view there is no room for any capricious action on the part of intelligent agents. Now in matters where the action of men is influenced by their real or supposed interest, or by a desire for the gratification of their senses or their higher feelings, it seems to me that their actions are subject to law, and might be foreseen in the minutest detail by beings possessing a sufficient knowledge of the circumstances. But, as the example I gave above shows, there are cases where men act without being influenced by any considerations of interest or pleasure,—in fact, from mere caprice; and it seems to me impossible that such actions should be capable of being foreseen; and, therefore, that the events which result from them, are equally incapable of being foreseen. Very important results may, however, follow from what are intrinsically trivial events;

* *Principles of Science*, p. 189, 2nd Ed.

and the conclusion I draw is that Jevons's proposition, that everything which happens has been predetermined, is quite erroneous.

The other view above mentioned, namely, that everything which does not happen by law, is regulated by Providence, seems to have been the view of the Hebrew sage who said, 'The lot is cast into the lap, but the whole disposing thereof is of the Lord' (Proverbs xvi. 33). This ancient idea represents Providence as taking a personal interest in human affairs, so that nothing is too trivial to be directed by the Ruler of the Universe. A somewhat different idea is expressed by Shakespeare when he says, 'There's a divinity that shapes our ends, rough-hew them how we will' (*Hamlet*, Act v. Sc. 2); and more tersely in the French proverb, '*L'homme propose, Dieu dispose.*' This is the idea of an overruling Providence, which is always watching lest the self-will of man should interfere with the preordained designs of the Creator. According to this view, when it is closely examined, there is nothing in any degree arbitrary or capricious in the workings of Providence; but these, being designed to bring about certain ends, may be said to be in accordance with fixed and invariable law. They are, in fact, somewhat analogous to the care with which an inventor may be supposed to watch the motions of a complicated machine he has constructed, and to remove every obstacle, however trifling, which tends to interfere with its smooth and regular working. According to the first view above mentioned, that everything happens according to invariable law, Man will have no free will, but must act in the preordained way; while according to the last view we have been considering, Man has free will to act as he chooses, but his actions are, to a certain unknown extent, overruled, so that good shall come out of evil. It seems to be implied in this view that Providence intervenes only on occasions of some importance, and not with regard to trivial matters, just as Cicero makes one of his characters say: The Gods take care of great things and disregard the small. (*De Nat. Deor.* ii. 66). Those who hold the former view are quite consistent in saying that there is no such thing as chance; but the latter view does not exclude the operation of chance in regard to matters of little consequence. This view, however, seems to me to be untenable; for it assumes that things which appear to us to be of importance, shall also appear to the Author of the Universe to be of importance; whereas it is quite clear that we are not in a position to judge which things are of great importance, and which are of little importance, in the Government of the Universe.

Although I have said that, from the nature of the case, it is impossible that certain individual events should be foreseen, such

as the succession of throws in 100 trials, yet we are able to say that, if there is nothing to make head turn up either more or less frequently than tail, they will in the long run turn up an equal number of times. In other words, if we have sufficient knowledge of the conditions, we are able to predict the course of events in the aggregate; and thus, although the actions of individual men are incapable of being predicted, it is conceivable that their actions in the aggregate may be capable of being foreseen, so that the general course of history, which depends in the long run, not on the will and actions of individual men, but on the opinions and resolutions of the many, may admit of being foreseen by a Being of unlimited knowledge. Questions of this kind appear to have been discussed by philosophers from the remotest times; for instance, Tacitus says, in a passage which has come under my notice while preparing this address (*Ann.* vi. 22): 'For myself my judgment wavers, whether human affairs are regulated by fate and immutable necessity, or left to roll on at random. For on this subject you will find the wisest of the ancients and the followers of their sects, are of opposite sentiments; and that many are of opinion that the gods take no interest in the beginning or the end of our course, or in short in humanity in any aspect: and thence so eternally calamities afflict the upright, while prosperity attends the wicked. Others hold the contrary position, and believe that events proceed in accordance with fate; but not a fate resulting from planetary influences, but referable to the principles and concatenation of natural causes. Yet they leave us liberty of election in our course of life; but after the choice is made, they say the chain of consequences is inevitable. . . . However, very many men remain still convinced that the future fortunes of each are determined at the moment of their birth.' (Translation in *Bohn's Classical Library.*)

Having thus settled what we are to understand by the probability of an event, I will now ask your attention to some instances of what I hold to be improper uses of the word.

Mr. Crofton, for instance, says:—'An astronomer thinks he can notice in a newly discovered planet a rotation from East to West: the probability that this is the case is, of course, that of his observations in like cases turning out correct, if we had no other source of information; but the actual probability is less, because we know that at least the vast majority of the planets and satellites revolve from West to East.' Here the word probability occurs twice; but on neither occasion has it the meaning which has been given to it by our definition. That definition related only to future events, but the astronomer's

observation is a past event; and the probability of his observation turning out to be correct, is of course the probability that it is really correct. We have, therefore, to consider what is meant by the probability that a past event, which is stated to have happened, really did happen. On considering this we see at once that the word probability is not used in the sense of our definition. There is no uncertainty attaching to the event itself: it has certainly either happened or failed; and the only uncertainty is in our state of mind, and arises from the imperfection of our knowledge. On this point Jevons says: 'A steam-vessel, for instance, is missing, and some persons believe she has sunk in mid-ocean; others think differently. In the event itself there can be no such uncertainty; the steam-vessel either has sunk or has not sunk, and no subsequent discussion of the probable nature of the event can alter the fact.' This, I imagine, is also what Professor Chrystal means by his remark, that probability is not an attribute of any particular event happening on any particular occasion. It would thus seem that, when we speak of the probability of a past event; as, for instance, if we say that there is a great probability that an overdue steamer has been lost; all that we really mean is that we think the steamer is lost, because in our experience it has generally turned out that overdue steamers have been really lost. If we say that, according to our observations, it has turned out in five cases out of six that an overdue steamer has been really lost, and then add that therefore $\frac{5}{6}$ is the probability that a certain steamer, which is now overdue, is really lost; this may perhaps be admissible, and in certain cases convenient; but in doing this we attach a new meaning to the word probability. It would be more correct to say in this case that $\frac{5}{6}$ is *our estimate* of the probability that the ship is lost; and it is clear that different persons will form different estimates, according to the experience they have had, and the nature and extent of their knowledge of the circumstances of the particular steamer to which the estimate relates.

There is another sense in which we may speak of the probability of a past event. Suppose, for instance, that I draw a ball from a bag containing white and black balls in known proportions; but close my hand in the bag, so that, when I draw my hand out, neither I nor any other person can see what is the colour of the ball I have drawn; we may then speak of the probability that I have drawn a white ball. But if we do this, we mean nothing more than that probability which, before I drew the ball, we should have called the probability of drawing a white ball; and we may, in the circumstances supposed, conveniently call this the antecedent probability of the event.

The following may be taken as another instance of the ante-

cedent probability of a past event. It once happened to me that, on getting my bank pass-book written up, the balance at my credit was £333, 3s. 3d. The remark at once occurs to us: That was very curious; the odds against having such a balance must have been very large. From the way in which a bank account is usually operated on, sums of various odd amounts being paid in and drawn out, it may fairly be assumed that any specified number of shillings and pence in the balance, is as likely to occur as any other; so that, for instance, we may say that the probability, that the balance on a particular future day, will be an exact number of pounds, with no shillings and no pence, is $\frac{1}{240}$; and the same is the probability that the shillings and pence will be 3s. 3d. But when we come to deal with the pounds, the problem is not so simple. The questions then arise, what sort of balance is there generally in the account? Is it usually of small amount? or does it range over hundreds, or thousands of pounds? and are all intermediate amounts equally likely to occur? Having regard to these circumstances, the practical difficulty of determining the probability that the balance will be exactly a certain definite amount, seems insuperable. But the above mentioned amount is remarkable, because all the figures contained in it are alike; and it is not difficult to calculate approximately the probability that the balance will be represented by figures which are all alike. Without making any assumption as to the absolute amount of the balance, except that it is less than £1000, we may fairly assume that the balances £332, £333, £334, are equally likely to occur; and proceeding a step further, that all possible balances from £277, 12s. 9d. to £388, 13s. 9d., are equally likely to occur; and in the same way that all possible balances from £388, 13s. 10d. to £499, 14s. 10d., are equally likely to occur; and so on. Now the total number of possible balances in each of these groups, is 26,653; and of these only one has the peculiarity that all the figures in it are the same: hence the odds against the occurrence of a balance having this character, are 26,652 to 1.

I believe that this antecedent probability is what Mr. Crofton had in view, when he speaks of the probability of the astronomer's observation turning out to be correct; and that he would imagine it to be arrived at in the following way. Suppose that the astronomer is known to have made $(a+b)$ observations of the same kind, and that a of them have turned out to be correct, and b incorrect; then $a/(a+b)$ will be the antecedent probability that the observation in question will turn out to be correct. But our definition stipulates that all the ways in which an event can happen must be equally likely; or, in the present case, that all the astronomer's observations must be equally likely to be correct; and when an

observation has been made, and is found to give a result which is at variance with our previous experience, we have no right to say that that observation is as likely to be correct as any other; and we therefore cannot determine its antecedent probability as above; in fact, we are not justified in speaking of its antecedent probability at all. When Mr. Crofton goes on to speak of the actual probability that the planet rotates from East to West, I do not hesitate to say that he uses words to which it is impossible to attach any definite meaning. If the discovery of a new planet were an everyday affair, and with regard to each the question arose: In which direction does it rotate?—the phrase 'actual probability' might be conceived to have a meaning. To illustrate this, let us take the case of a man who is accused of a theft: we may speak in a loose way of the actual probability that he is guilty; but all that we can mean by this probability is the proportion of persons accused under similar circumstances who are really guilty. It is, however, clearly impossible to obtain data that will enable us to determine this proportion, so that nothing is gained by using such language, and it should certainly be avoided in a mathematical treatise. I conclude, therefore, that to speak of the actual probability of a newly-discovered planet rotating from East to West, is an inexcusable abuse of language.

As another instance I will take one of the questions that is commonly considered in Works on Probability: A says that B says that a certain occurrence took place: if p is the probability of A speaking the truth, and p' that of B, what is the probability that the occurrence actually took place?* In the solution that is commonly given of this problem, we are told that the occurrence took place if both A and B speak truth, and also if they both speak falsely; and that therefore the probability that the occurrence took place, is $pp'+(1-p)(1-p')$. Now on this solution I have to remark that the word probability is used in it with two different meanings, one of which is covered by our definition, while the other is not. What is meant by saying that p is the probability of A speaking the truth? Simply that, p being equal to $a/(a+b)$, where a and b are large integers, it has been observed that A speaks truth a times out of $(a+b)$; and that we assume that all A's statements are equally likely to be true. The 'event' of our definition, then, is A's speaking the truth; and we consider that this may happen in a ways and fail in b ways. This use of the word, then, is in accordance with our definition. But can we speak in the same way of the probability that the occurrence actually took place? Clearly not! The event is here

* A full discussion of this problem will be found in the *Journal of the Institute of Actuaries*, xxi, 204, and xxii, 356.

past; but the so-called probability brought out by the solution, is not the antecedent probability of the event. This is at once seen when we take a particular case: for instance, '*A* says that *B* says that *C* threw double sixes with a pair of dice three times running. *A* speaks correctly 9 times out of 10, and *B* 3 times out of 4.' Here the formula gives us the so-called probability:

$$\tfrac{9}{10}\cdot\tfrac{3}{4}+\tfrac{1}{10}\cdot\tfrac{1}{4}=\tfrac{28}{40}=\tfrac{7}{10}.$$

But the antecedent probability that *C* made the remarkable throws in question, is evidently very much less. Todhunter remarks with regard to a similar problem, that the solution gives the probability of the truth of the assertion, *so far as that truth depends solely on the testimony of the witnesses considered.* I confess I am not able to attach any clear meaning to these words; for the truth of the assertion, or, in other words, the truth of the fact asserted, must be quite independent of the statements that the witnesses make regarding it. The fact either is, or is not, whatever may be said about it; and although we may conveniently say of an asserted fact that it is probably true or probably untrue, we should be careful to keep in mind that we then use the word 'probably' with a meaning that has little or nothing to do with our mathematical definition of probability. What we mean when we say that an asserted event is probably untrue, is that we believe it will turn out to be untrue; and the grounds of our belief may be either that the asserted fact is contrary to our usual experience, or that the persons on whose authority the statement is made are untrustworthy.

It will be seen, on examining the above solution, that the probability it gives us is simply the antecedent probability, that both *A* and *B* will speak truth or else both speak untruth; and the inference, that this probability will enable us to form a judgment as to the truth or untruth of the asserted fact, depends on the assumption, that the estimate of the truthfulness of the witnesses which we have formed from previous experience, holds good with regard to the new matter in question. But, assuming this, the reasoning of the solution is incorrect, unless we make another supposition, namely, that *B* has actually made an assertion regarding the matter. *A* says that *B* says that a certain occurrence has taken place; and if *B* has really made an assertion on the subject, we get pp', the first term in our supposed solution; but, if *B* has made no assertion, the reasoning by which we got the term entirely fails, because *B*'s veracity has no bearing on the question. Again, even if *B* has made an assertion on the subject, it is only in a very small number of cases that the reasoning of the solution will hold good; in fact, only when there is but one way for *B* to go

wrong. If, for instance, the assertion is made with regard to the result of the annual boat-race between Cambridge and Oxford, that Cambridge has won, then this will be the fact if both A and B speak truly, and also if both A and B speak falsely; and the formula is applicable. But, if the asserted fact is of a kind where it is possible to go wrong in various ways; if, for instance, it is stated that 20 people have been killed by the breaking of a bridge on the X railway; this assertion may be untrue as regards an accident happening at all, or as regards the number of persons killed, or as regards the cause of the accident, or as regards the railway on which it happened; and if A says that B has reported this occurrence, it does not follow, as is assumed in the solution, that the occurrence has taken place when both A and B have spoken falsely.

We have seen that there are some classes of events which happen by chance, and that these are the events to which the Theory of Probabilities is primarily applicable. This being the case, I believe it would conduce to clearness of thought and accuracy of reasoning, if we gave up the use of the above title, which I imagine was borrowed from the French *Théorie des Probabilités*,* and went back to De Moivre's title, *Doctrine of Chances.*

Dr. Venn uses the words probability and chance as identical; but he is not an authority to be followed in such matters. For instance, he lately read a paper before the Statistical Society, to which he gave the title, *On different kinds of Averages.* (See also Chapter xviii. of his book.) The word 'average' has in common language a precisely defined meaning; if there are n quantities, a_1, a_2, . . . a_n, then the average of them is $(a_1+a_2 \ldots+a_n)/n$. In this way we speak of the average amount of the policies in an Insurance Office, or the average age of the lives insured, or the average height of the men in a regiment, and so on; and in every such case the words can have only one meaning. Is it not, then, an abuse of language to unsettle this definite meaning, and to speak of different kinds of averages? When a word in common use is adopted into the language of science, its meaning is usually limited and made more precise; but Dr. Venn has done exactly the opposite. He has taken a word in common use, which has a precise meaning; and

* I leave it to others to say whether these French words have precisely the same meaning as the English *Theory of Probabilities*, or *Theory of Probability*, both of which are in use; but there is no doubt that in some other cases translators have not given the proper English equivalent of a French word or phrase. For instance, the French *moyen* is often translated *mean*, when *average* would more accurately express the meaning; and the French *l'axe des x*, which means *the axis of the x's*, should not be translated, as it usually is, *the axis of x*, but *the x-axis.*

he has employed it in a much wider and an indefinite sense. Sometimes a popular word does not admit of being made precise, and its use must then be altogether abandoned in science; for instance, the word 'round' has to be replaced by such words as circular and globular, or spherical. When the Psalmist, for instance, speaks of 'the round world', we have no means of knowing whether he thought that the world was globular, or flat and circular. The title of Dr. Venn's paper should have been 'On different kinds of *means*.' Works on Algebra very commonly describe three kinds of means; the arithmetical, geometrical, and the harmonic; and other kinds are in occasional use. In the subject of life contingencies I think it would conduce to clearness of thought, if the word 'average' were always employed where it is strictly applicable, instead of 'mean'; for instance, it is clearly more correct to speak of the average duration of life than of the mean duration. There is but one duration for each age, that can be called the average; whereas there are at least three which may fairly claim to be called mean durations; namely, (1) The average duration; (2) The most probable duration; (3) The duration which there is an even chance of reaching.

It follows from what I have said, that the word 'chance' should be used when we are sure there is an uncertainty about the event itself, and not merely as to our knowledge of it; for instance, when we draw a ball out of a bag containing both white and black balls, it will be more correct to speak of the chance, than of the probability, of drawing a white ball. When, however, there is no uncertainty about the event itself, we may, or we may not, be able to predict it. In neither case will it then be correct to speak of the chance of the event; and if we are able to predict the event, it will not be permissible to speak of its probability. For instance, we cannot properly speak of the probability that there will be an eclipse of the moon next year (1893); for any almanac will inform us that there will be none. But we may properly speak of the probability that it will snow on 1st January next; for, although this event is in itself as certain as the occurrence of eclipses, we are not able to trace the laws which regulate it, and we have no means of knowing beforehand what the weather will be on any future day. In cases of this kind it is clear that the so-called probability of the event, is not an attribute of the event itself; but the words simply express the attitude of the speaker's mind towards the event. The word probability may be similarly used with regard to any unknown future event which is regulated by fixed laws; but, as there is no uncertainty as to the event itself, we mean by its probability something very different from the probability of an event according to our definition.

There is still another class of cases, which is practically the most important of all; those, namely, with regard to which we cannot say whether they are entirely regulated by invariable law, or whether there is an element of chance in them. Such are most, if not all, of the events with which the business of insurance has to deal—the deaths or marriages of individuals, the burning of houses, the loss of ships, the occurrence of accidents, or frauds. None of these things happen purely by chance, and the Doctrine of Chances gives us very little assistance in dealing with them. In most cases, the death, marriage, conflagration, wreck, accident, or fraud, is the natural consequence of causes that have been in operation for a longer or shorter time beforehand; and if we could see all these causes, and trace their consequences, we should be able to foretell with tolerable certainty many of the events we are asked to insure against. It is our constant aim in the business of insurance to do this as far as possible; and the success of an Insurance Company depends very much on the skill with which its Directors or Manager, can distinguish those risks which are likely to turn out badly, from those which are likely to turn out well for the insurer. If insurance were a mere matter of chances, to be determined by the study of statistics, it would be a much simpler business than it is. There would be little scope for the exercise of judgment and skill by the Company's officials; and experience would count for very little, whereas at present its importance can scarcely be exaggerated. In a word, the business of insurance depends not so much on the calculation of chances as on the estimate of probabilities.

My general conclusion then is, that the propositions of the so-called Theory of Probabilities, which I would prefer to call the Doctrine of Chances, are applicable only to future events which are in themselves uncertain; and that they have no reference to future events which, although unknown to us, are not in themselves uncertain; and that therefore the business of insurance has little or nothing to do with the Mathematical calculation of chances.

as the succession of throws in 100 trials, yet we are able to say that, if there is nothing to make head turn up either more or less frequently than tail, they will in the long run turn up an equal number of times. In other words, if we have sufficient knowledge of the conditions, we are able to predict the course of events in the aggregate; and thus, although the actions of individual men are incapable of being predicted, it is conceivable that their actions in the aggregate may be capable of being foreseen, so that the general course of history, which depends in the long run, not on the will and actions of individual men, but on the opinions and resolutions of the many, may admit of being foreseen by a Being of unlimited knowledge. Questions of this kind appear to have been discussed by philosophers from the remotest times; for instance, Tacitus says, in a passage which has come under my notice while preparing this address (*Ann.* vi. 22): 'For myself my judgment wavers, whether human affairs are regulated by fate and immutable necessity, or left to roll on at random. For on this subject you will find the wisest of the ancients and the followers of their sects, are of opposite sentiments; and that many are of opinion that the gods take no interest in the beginning or the end of our course, or in short in humanity in any aspect: and thence so eternally calamities afflict the upright, while prosperity attends the wicked. Others hold the contrary position, and believe that events proceed in accordance with fate; but not a fate resulting from planetary influences, but referable to the principles and concatenation of natural causes. Yet they leave us liberty of election in our course of life; but after the choice is made, they say the chain of consequences is inevitable. . . . However, very many men remain still convinced that the future fortunes of each are determined at the moment of their birth.' (Translation in *Bohn's Classical Library.*)

Having thus settled what we are to understand by the probability of an event, I will now ask your attention to some instances of what I hold to be improper uses of the word.

Mr. Crofton, for instance, says:—'An astronomer thinks he can notice in a newly discovered planet a rotation from East to West: the probability that this is the case is, of course, that of his observations in like cases turning out correct, if we had no other source of information; but the actual probability is less, because we know that at least the vast majority of the planets and satellites revolve from West to East.' Here the word probability occurs twice; but on neither occasion has it the meaning which has been given to it by our definition. That definition related only to future events, but the astronomer's

observation is a past event; and the probability of his observation turning out to be correct, is of course the probability that it is really correct. We have, therefore, to consider what is meant by the probability that a past event, which is stated to have happened, really did happen. On considering this we see at once that the word probability is not used in the sense of our definition. There is no uncertainty attaching to the event itself: it has certainly either happened or failed; and the only uncertainty is in our state of mind, and arises from the imperfection of our knowledge. On this point Jevons says: 'A steam-vessel, for instance, is missing, and some persons believe she has sunk in mid-ocean; others think differently. In the event itself there can be no such uncertainty; the steam-vessel either has sunk or has not sunk, and no subsequent discussion of the probable nature of the event can alter the fact.' This, I imagine, is also what Professor Chrystal means by his remark, that probability is not an attribute of any particular event happening on any particular occasion. It would thus seem that, when we speak of the probability of a past event; as, for instance, if we say that there is a great probability that an overdue steamer has been lost; all that we really mean is that we think the steamer is lost, because in our experience it has generally turned out that overdue steamers have been really lost. If we say that, according to our observations, it has turned out in five cases out of six that an overdue steamer has been really lost, and then add that therefore $\frac{5}{6}$ is the probability that a certain steamer, which is now overdue, is really lost; this may perhaps be admissible, and in certain cases convenient; but in doing this we attach a new meaning to the word probability. It would be more correct to say in this case that $\frac{5}{6}$ is *our estimate* of the probability that the ship is lost; and it is clear that different persons will form different estimates, according to the experience they have had, and the nature and extent of their knowledge of the circumstances of the particular steamer to which the estimate relates.

There is another sense in which we may speak of the probability of a past event. Suppose, for instance, that I draw a ball from a bag containing white and black balls in known proportions; but close my hand in the bag, so that, when I draw my hand out, neither I nor any other person can see what is the colour of the ball I have drawn; we may then speak of the probability that I have drawn a white ball. But if we do this, we mean nothing more than that probability which, before I drew the ball, we should have called the probability of drawing a white ball; and we may, in the circumstances supposed, conveniently call this the antecedent probability of the event.

The following may be taken as another instance of the ante-

cedent probability of a past event. It once happened to me that, on getting my bank pass-book written up, the balance at my credit was £333, 3s. 3d. The remark at once occurs to us: That was very curious; the odds against having such a balance must have been very large. From the way in which a bank account is usually operated on, sums of various odd amounts being paid in and drawn out, it may fairly be assumed that any specified number of shillings and pence in the balance, is as likely to occur as any other; so that, for instance, we may say that the probability, that the balance on a particular future day, will be an exact number of pounds, with no shillings and no pence, is $\frac{1}{240}$; and the same is the probability that the shillings and pence will be 3s. 3d. But when we come to deal with the pounds, the problem is not so simple. The questions then arise, what sort of balance is there generally in the account? Is it usually of small amount? or does it range over hundreds, or thousands of pounds? and are all intermediate amounts equally likely to occur? Having regard to these circumstances, the practical difficulty of determining the probability that the balance will be exactly a certain definite amount, seems insuperable. But the above mentioned amount is remarkable, because all the figures contained in it are alike; and it is not difficult to calculate approximately the probability that the balance will be represented by figures which are all alike. Without making any assumption as to the absolute amount of the balance, except that it is less than £1000, we may fairly assume that the balances £332, £333, £334, are equally likely to occur; and proceeding a step further, that all possible balances from £277, 12s. 9d. to £388, 13s. 9d., are equally likely to occur; and in the same way that all possible balances from £388, 13s. 10d. to £499, 14s. 10d., are equally likely to occur; and so on. Now the total number of possible balances in each of these groups, is 26,653; and of these only one has the peculiarity that all the figures in it are the same: hence the odds against the occurrence of a balance having this character, are 26,652 to 1.

I believe that this antecedent probability is what Mr. Crofton had in view, when he speaks of the probability of the astronomer's observation turning out to be correct; and that he would imagine it to be arrived at in the following way. Suppose that the astronomer is known to have made $(a+b)$ observations of the same kind, and that a of them have turned out to be correct, and b incorrect; then $a/(a+b)$ will be the antecedent probability that the observation in question will turn out to be correct. But our definition stipulates that all the ways in which an event can happen must be equally likely; or, in the present case, that all the astronomer's observations must be equally likely to be correct; and when an

observation has been made, and is found to give a result which is at variance with our previous experience, we have no right to say that that observation is as likely to be correct as any other; and we therefore cannot determine its antecedent probability as above; in fact, we are not justified in speaking of its antecedent probability at all. When Mr. Crofton goes on to speak of the actual probability that the planet rotates from East to West, I do not hesitate to say that he uses words to which it is impossible to attach any definite meaning. If the discovery of a new planet were an everyday affair, and with regard to each the question arose: In which direction does it rotate?—the phrase 'actual probability' might be conceived to have a meaning. To illustrate this, let us take the case of a man who is accused of a theft: we may speak in a loose way of the actual probability that he is guilty; but all that we can mean by this probability is the proportion of persons accused under similar circumstances who are really guilty. It is, however, clearly impossible to obtain data that will enable us to determine this proportion, so that nothing is gained by using such language, and it should certainly be avoided in a mathematical treatise. I conclude, therefore, that to speak of the actual probability of a newly-discovered planet rotating from East to West, is an inexcusable abuse of language.

As another instance I will take one of the questions that is commonly considered in Works on Probability: A says that B says that a certain occurrence took place: if p is the probability of A speaking the truth, and p' that of B, what is the probability that the occurrence actually took place?* In the solution that is commonly given of this problem, we are told that the occurrence took place if both A and B speak truth, and also if they both speak falsely; and that therefore the probability that the occurrence took place, is $pp'+(1-p)(1-p')$. Now on this solution I have to remark that the word probability is used in it with two different meanings, one of which is covered by our definition, while the other is not. What is meant by saying that p is the probability of A speaking the truth? Simply that, p being equal to $a/(a+b)$, where a and b are large integers, it has been observed that A speaks truth a times out of $(a+b)$; and that we assume that all A's statements are equally likely to be true. The 'event' of our definition, then, is A's speaking the truth; and we consider that this may happen in a ways and fail in b ways. This use of the word, then, is in accordance with our definition. But can we speak in the same way of the probability that the occurrence actually took place? Clearly not! The event is here

* A full discussion of this problem will be found in the *Journal of the Institute of Actuaries*, xxi, 204, and xxii, 356.

past; but the so-called probability brought out by the solution, is not the antecedent probability of the event. This is at once seen when we take a particular case: for instance, '*A* says that *B* says that *C* threw double sixes with a pair of dice three times running. *A* speaks correctly 9 times out of 10, and *B* 3 times out of 4.' Here the formula gives us the so-called probability:

$$\tfrac{9}{10}\cdot\tfrac{3}{4}+\tfrac{1}{10}\cdot\tfrac{1}{4}=\tfrac{28}{40}=\tfrac{7}{10}.$$

But the antecedent probability that *C* made the remarkable throws in question, is evidently very much less. Todhunter remarks with regard to a similar problem, that the solution gives the probability of the truth of the assertion, *so far as that truth depends solely on the testimony of the witnesses considered.* I confess I am not able to attach any clear meaning to these words; for the truth of the assertion, or, in other words, the truth of the fact asserted, must be quite independent of the statements that the witnesses make regarding it. The fact either is, or is not, whatever may be said about it; and although we may conveniently say of an asserted fact that it is probably true or probably untrue, we should be careful to keep in mind that we then use the word 'probably' with a meaning that has little or nothing to do with our mathematical definition of probability. What we mean when we say that an asserted event is probably untrue, is that we believe it will turn out to be untrue; and the grounds of our belief may be either that the asserted fact is contrary to our usual experience, or that the persons on whose authority the statement is made are untrustworthy.

It will be seen, on examining the above solution, that the probability it gives us is simply the antecedent probability, that both *A* and *B* will speak truth or else both speak untruth; and the inference, that this probability will enable us to form a judgment as to the truth or untruth of the asserted fact, depends on the assumption, that the estimate of the truthfulness of the witnesses which we have formed from previous experience, holds good with regard to the new matter in question. But, assuming this, the reasoning of the solution is incorrect, unless we make another supposition, namely, that *B* has actually made an assertion regarding the matter. *A* says that *B* says that a certain occurrence has taken place; and if *B* has really made an assertion on the subject, we get pp', the first term in our supposed solution; but, if *B* has made no assertion, the reasoning by which we got the term entirely fails, because *B*'s veracity has no bearing on the question. Again, even if *B* has made an assertion on the subject, it is only in a very small number of cases that the reasoning of the solution will hold good; in fact, only when there is but one way for *B* to go

wrong. If, for instance, the assertion is made with regard to the result of the annual boat-race between Cambridge and Oxford, that Cambridge has won, then this will be the fact if both A and B speak truly, and also if both A and B speak falsely; and the formula is applicable. But, if the asserted fact is of a kind where it is possible to go wrong in various ways; if, for instance, it is stated that 20 people have been killed by the breaking of a bridge on the X railway; this assertion may be untrue as regards an accident happening at all, or as regards the number of persons killed, or as regards the cause of the accident, or as regards the railway on which it happened; and if A says that B has reported this occurrence, it does not follow, as is assumed in the solution, that the occurrence has taken place when both A and B have spoken falsely.

We have seen that there are some classes of events which happen by chance, and that these are the events to which the Theory of Probabilities is primarily applicable. This being the case, I believe it would conduce to clearness of thought and accuracy of reasoning, if we gave up the use of the above title, which I imagine was borrowed from the French *Théorie des Probabilités*,* and went back to De Moivre's title, *Doctrine of Chances.*

Dr. Venn uses the words probability and chance as identical; but he is not an authority to be followed in such matters. For instance, he lately read a paper before the Statistical Society, to which he gave the title, *On different kinds of Averages.* (See also Chapter xviii. of his book.) The word 'average' has in common language a precisely defined meaning; if there are n quantities, a_1, a_2, . . . a_n, then the average of them is $(a_1+a_2 \ldots+a_n)/n$. In this way we speak of the average amount of the policies in an Insurance Office, or the average age of the lives insured, or the average height of the men in a regiment, and so on; and in every such case the words can have only one meaning. Is it not, then, an abuse of language to unsettle this definite meaning, and to speak of different kinds of averages? When a word in common use is adopted into the language of science, its meaning is usually limited and made more precise; but Dr. Venn has done exactly the opposite. He has taken a word in common use, which has a precise meaning; and

* I leave it to others to say whether these French words have precisely the same meaning as the English *Theory of Probabilities*, or *Theory of Probability*, both of which are in use; but there is no doubt that in some other cases translators have not given the proper English equivalent of a French word or phrase. For instance, the French *moyen* is often translated *mean*, when *average* would more accurately express the meaning; and the French *l'axe des x*, which means *the axis of the x's*, should not be translated, as it usually is, *the axis of x*, but *the x-axis.*

he has employed it in a much wider and an indefinite sense. Sometimes a popular word does not admit of being made precise, and its use must then be altogether abandoned in science; for instance, the word 'round' has to be replaced by such words as circular and globular, or spherical. When the Psalmist, for instance, speaks of 'the round world', we have no means of knowing whether he thought that the world was globular, or flat and circular. The title of Dr. Venn's paper should have been 'On different kinds of *means*.' Works on Algebra very commonly describe three kinds of means; the arithmetical, geometrical, and the harmonic; and other kinds are in occasional use. In the subject of life contingencies I think it would conduce to clearness of thought, if the word 'average' were always employed where it is strictly applicable, instead of 'mean'; for instance, it is clearly more correct to speak of the average duration of life than of the mean duration. There is but one duration for each age, that can be called the average; whereas there are at least three which may fairly claim to be called mean durations; namely, (1) The average duration; (2) The most probable duration; (3) The duration which there is an even chance of reaching.

It follows from what I have said, that the word 'chance' should be used when we are sure there is an uncertainty about the event itself, and not merely as to our knowledge of it; for instance, when we draw a ball out of a bag containing both white and black balls, it will be more correct to speak of the chance, than of the probability, of drawing a white ball. When, however, there is no uncertainty about the event itself, we may, or we may not, be able to predict it. In neither case will it then be correct to speak of the chance of the event; and if we are able to predict the event, it will not be permissible to speak of its probability. For instance, we cannot properly speak of the probability that there will be an eclipse of the moon next year (1893); for any almanac will inform us that there will be none. But we may properly speak of the probability that it will snow on 1st January next; for, although this event is in itself as certain as the occurrence of eclipses, we are not able to trace the laws which regulate it, and we have no means of knowing beforehand what the weather will be on any future day. In cases of this kind it is clear that the so-called probability of the event, is not an attribute of the event itself; but the words simply express the attitude of the speaker's mind towards the event. The word probability may be similarly used with regard to any unknown future event which is regulated by fixed laws; but, as there is no uncertainty as to the event itself, we mean by its probability something very different from the probability of an event according to our definition.

There is still another class of cases, which is practically the most important of all; those, namely, with regard to which we cannot say whether they are entirely regulated by invariable law, or whether there is an element of chance in them. Such are most, if not all, of the events with which the business of insurance has to deal—the deaths or marriages of individuals, the burning of houses, the loss of ships, the occurrence of accidents, or frauds. None of these things happen purely by chance, and the Doctrine of Chances gives us very little assistance in dealing with them. In most cases, the death, marriage, conflagration, wreck, accident, or fraud, is the natural consequence of causes that have been in operation for a longer or shorter time beforehand; and if we could see all these causes, and trace their consequences, we should be able to foretell with tolerable certainty many of the events we are asked to insure against. It is our constant aim in the business of insurance to do this as far as possible; and the success of an Insurance Company depends very much on the skill with which its Directors or Manager, can distinguish those risks which are likely to turn out badly, from those which are likely to turn out well for the insurer. If insurance were a mere matter of chances, to be determined by the study of statistics, it would be a much simpler business than it is. There would be little scope for the exercise of judgment and skill by the Company's officials; and experience would count for very little, whereas at present its importance can scarcely be exaggerated. In a word, the business of insurance depends not so much on the calculation of chances as on the estimate of probabilities.

My general conclusion then is, that the propositions of the so-called Theory of Probabilities, which I would prefer to call the Doctrine of Chances, are applicable only to future events which are in themselves uncertain; and that they have no reference to future events which, although unknown to us, are not in themselves uncertain; and that therefore the business of insurance has little or nothing to do with the Mathematical calculation of chances.

Misrepresentation and Concealment as affecting Policies of Insurance

BY

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Misrepresentation and Concealment as affecting Policies of Insurance

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It will probably conduce to clearness if I explain at the outset the order in which I propose to deal with the subject of this paper.

In the first part of the paper I propose to discuss, in relation to policies of insurance, (1) the general rules of law in regard to fraud or misrepresentation in the preliminary negotiations, as invalidating contracts; and (2) the rules of law as to concealment in relation to contracts, such as contracts of insurance, in regard to which the law requires the utmost good faith on both sides. I shall also consider the effect of misrepresentation or concealment by a third party, not a party to the contract.

In the second part I shall refer to the usual forms of provision in policies of life assurance, relating to the answers by the assured to the questions in the proposal, and consider their effect in modifying the rules of the common law. In this connection I shall endeavour to classify policies on well-marked lines of distinction, and will also deal with the question of the interpretation of the usual inquiries in the proposal, and the rules of construction of ambiguous or contradictory provisions in the policy or declaration.

In the third part I shall discuss the doctrines of waiver and of agency as limiting, in certain cases, the insurer's right to rescind.

I.—(*a*) *Fraud—of Parties to Contract—of Agents—of Third Parties.*

It is an elementary principle of law that fraud vitiates all contracts where the fraud is practised by the contracting parties or by their agents employed to negotiate the contract. A fraudulent misrepresentation is assumed to be material, on the ground that a party who has used fraudulent means to induce another to contract cannot plead that his fraud has had no effect. At the same time, the fraud must have been really instrumental in inducing the contract, and must have actually deceived the other party. Thus, a statement tending to show that a life proposed for insur-

ance is not insurable, will not avoid the policy, although false, and made under the mistaken idea that its effect would be different. Nor will the fraud avoid if the other party or his agent, where the contract is made by an agent, is aware of the real state of the facts, and of the untruth of the representation when made.[1]

In general, where a policy is avoided for fraud or on any other ground, there must be a return of the premiums, because a party who seeks to avoid a contract cannot retain any benefit under it. A different rule is stated in the text-books, on the authority of an old English case, but this decision seems opposed to the principles which have been laid down in more recent and authoritative decisions in other branches of the law.[2] In almost all policies, however, the question is excluded by special stipulations for the forfeiture of the premiums in the event of the policy being rescinded.

Where a contract is induced by the fraud of a third party, the general rule is, that the contract is valid, if neither of the parties to it are cognisant of the fraud, and if the contract is onerous, and has been acted on in such a way that the position of the party against whom rescission is sought is materially altered. But if the contract on either side is gratuitous, or if it would involve no substantial hardship to either if matters were restored to the position in which they were before the contract was entered into, it is thought that a different rule would prevail.[3] The exception rests on the principle that no one is entitled to retain a benefit gratuitously and at the expense of another, if the benefit has been obtained through a third person's fraud.

On these principles, it has been held that, where an insurance company has granted a policy to one person on the life of another, it will not be rendered voidable by the fraud of the life insured, or of his medical or private referees.[4] These persons are not regarded as the agents of the assured, for whose fraud he would be responsible. In the case referred to, the risk had terminated by the death of the life insured, so that it was impossible to restore matters, or rescind the contract without inflicting serious loss on one of the parties to it, who was, *ex hypothesi*, entirely innocent of the fraud. But if the fraud had been discovered at once, or before there had been an essential change in the position of the parties, it is thought that an action to set aside the policy would have been sustained, on condition of restitution of the premiums. Whether the case was rightly decided as regards the position of the referees and life insured is not so clear, and we shall recur to that question later on.

[1] Bell's *Principles*, Secs. 13 and 14, and Editor's notes.
[2] Edinburgh United Breweries Co. *v.* Molleson, 20 Rettie 581.
[3] Taylor *v.* Tweedie, 3 Macph, 928; New York Life Ins. Co. *v.* Fletcher, 117 U.S. 519.
[4] Wheelton *v.* Hardisty, 8 E. & B. 232.

I.—(*b*) *Misrepresentation—must be material if not wilful—Criterion of materiality.*

Even if a misrepresentation is not fraudulent, it will, if material, avoid a contract which has been entered into on reliance on it. This rule has repeatedly been applied to contracts of marine and fire insurance, and it has been laid down in numerous dicta that it also applies to life insurance. Jessel, M. R., says in the London Assurance Co. *v.* Mansel:—

'The first question to be decided is, what is the principle on which the court acts in setting aside contracts of assurance? As regards the general principle I am not prepared to lay down the law as making any difference in substance between one contract of assurance and another. Whether it is life, or fire, or marine assurance, I take it, good faith is required in all cases, and though there may be certain circumstances, from the peculiar nature of marine insurance, which require to be disclosed, and which do not apply to other contracts of insurance, that is rather, in my opinion, an illustration of the application of the principle than a distinction in principle.'[1]

And Lord Herschell, in a case not relating to insurance, states the general rule as follows:—

'Where rescission is claimed it is only necessary to prove that there was misrepresentation; then, however honestly it may have been made, however free from blame the person who made it, the contract, having been obtained by misrepresentation, cannot stand.'[2]

The principle upon which an innocent misrepresentation by either of the contracting parties renders a contract voidable, has been variously stated. It is said that such a representation must be regarded as fraud, because its effect is the same on the party misled. In either case he contracts under essential error. In this view the name legal or constructive fraud has been given to misrepresentation, not wilfully false, but having the same effect in inducing the contract as actual fraud. On the other hand, it is said that misrepresentation avoids a contract under an implied term or condition of the contract that the representations by which it is induced are accurate. This theory is thought to be preferable to the former, because, as has been said, the idea of legal fraud is as unreal as the idea of legal heat or legal cold.

If, however, misrepresentations are innocent, they must, to have any effect, be conclusively proved to have been a material inducement to the contract. A misrepresentation is material, if the other party would not have entered into the contract at all, or would only have entered into it on different terms, had he been

[1] London Assurance *v.* Mansel, 1879, L. R. 11. Ch. D. 363, 367, and cases cited.
[2] Lord Herschell in Derry *v.* Peek, 14 App. Cas., 337, 359.

in possession of the real state of the facts.[1] As regards policies of insurance, it is generally sufficient to show that, if the truth had been known, the risk would not have been undertaken at all or would not have been undertaken at the premium offered. It is deemed a material fact that the life has been accepted or declined by other offices, because this fact would influence the judgment of most insurers in accepting or declining the risk. The fact of materiality must be proved to the satisfaction of the court or jury, unless the policy contains an agreement that certain information shall be treated as material.[2]

A representation must have reference to an existing state of facts; a representation as to the future is a mere expression of intention, and has no binding force, unless it is expressly made a condition of the contract.[3] Thus, if a proposal for life assurance contains a statement made in good faith that the assured has no intention of going abroad, he may subsequently go abroad without invalidating the policy, unless the statement is incorporated as a promise in the policy, or unless it is made the subject of an exception to the risk.

As in the case of fraud, the policy will be avoided for misrepresentation, whether the misrepresentation is made by the assured himself or by his agent to effect the insurance. The principle is that a man cannot by employing another to do what he may do himself acquire higher rights than if he did the act himself. As regards the question of agency, a policy of insurance is in the same position as other contracts. A misrepresentation, although not wilful, if made by the person actually negotiating any contract whether as principal or agent, if a material inducement to the other party to enter into the engagement, will render it voidable at his option.

I.—(*c*) *Concealment—peculiar, as a ground of reduction, to certain classes of contracts—duty of disclosure of agents or servants of the parties.*

Concealment, as a ground of rescission of contract, is peculiar to certain classes of contracts, of which insurance contracts is one. In this connection insurance contracts are said to be *uberrimae fidei*. As regards ordinary mercantile contracts, the rule is that neither party is under any obligation to volunteer information, even if material, and unknown to the other, if he makes no active misrepresentation.[4] But policies of insurance, as contracts requiring

[1] Menzies *v.* Menzies, 30 S. L. R. 530, per Ld. Watson 535; Stewart *v*, Kennedy, 17 Rettie (H. of L.) 25, 29.
[2] London Assurance *v.* Mansel *supra*, Bunyon, pp. 38, 58.
[3] Anson, *Law of Contract*, 168 (7th Edition).
[4] Davies *v.* London and Provincial M. Ins. Co., L. R., 8 Ch. D. 469.

the utmost good faith on both sides, are made under an implied condition that all material facts known to either party will be disclosed.[1] The materiality of the concealment is determined by the same rules as in the case of misrepresentation.

The avoidance will be incurred whether the contract is made by an agent or by the principal. Where it is made by an agent, all material facts known either to the agent or the principal must be disclosed. A principal may even be made responsible for the concealment of a fact of which he is himself ignorant, if his ignorance is due to the omission of servants or agents, who in the ordinary course of their duty ought to have informed him of the fact withheld. Thus, if the master of a vessel fail to inform the owners of the condition or situation of the ship at the time when the insurance is effected, and information on these points is consequently withheld from the insurers, the policy will be void. There must, however, be a duty to give the information to the principal on the part of the servant or agent. It has been held that no such duty exists where a broker is employed to negotiate a marine policy, except as regards the specific insurance he is employed to negotiate. If after the employment of one broker has ceased, another broker is employed to obtain additional insurance on the same risk, the latter insurance will not be invalidated by the silence of the broker who procured the first insurance as to material facts, if he has had nothing to do with procuring the policy challenged.[2] It is only where facts are withheld by an agent employed to negotiate the policy sought to be avoided, or by a servant or agent not so employed, but within whose duty it falls to inform the principal of the facts withheld, that the policy can be set aside. *A fortiori* a concealment by a third party, who is not, and who never was the agent of either of the parties to the contract, whether fraudulent or inadvertent, will have no effect upon the policy. In regard to life policies, it is undoubtedly the case that the principal will be affected by a concealment by any one who may fairly be regarded as his agent in negotiating the policy; but as we have seen, this does not include either the private or medical referees of the assured, or of the life insured, if the policy is on the life of another.[3] A concealment or misrepresentation by any of these persons, even if fraudulent, will not invalidate the policy at common law, if they have not acted as agents in procuring it. It, therefore, appears that in marine insurance, the law places a duty of disclosure upon the master or supercargo of a vessel abroad, but not upon the life

[1] Per Blackburn J. in Ionides *v.* Pender, L. R., 9 Q. B. 537.
[2] Blackburn *v.* Vigors, 17 Q. B. D. 553, 12 App. Cas. 531.
[3] Wheelton *v.* Hardesty, 8 E. & B. 232.

or the referees in a life policy. The reason of the distinction is probably that, in the latter case, the company may, if they please, medically examine the life, and so inform themselves as to the risk; while the underwriters in marine insurance must necessarily rely largely on information obtained through the servants of the assured.

The duty of the disclosure is not confined to matters which are the subject of specific inquiry in the proposal. In addition to fully answering what is asked, any material circumstance must be disclosed, which, from its special nature, has not suggested itself as a subject for inquiry. In most forms of proposal there is a general question intended to meet special cases of this kind, requiring the proposer to state any other facts, in addition to those as to which specific inquiry has been made, which may render his life, or the life proposed for insurance, more than usually hazardous, or any other diseases or circumstances in his habits or environment, which may tend to shorten his life.

If no answer whatever is given by the applicant for insurance to a specific question in the proposal, the acceptance of the proposal by the company is held to imply that they dispense with information on the point. If two or more questions are grouped under one head, the same rule applies to each separate question. If the insurers accept an answer which obviously applies only to one question, they waive information as to the others. But if the answer of the applicant to a composite question purports to be complete, and induces the insurers to forego further inquiry, under the belief that the question has been fully answered, then the omission in the answer, if material in point of fact, or made material by express agreement, will avoid the policy.

The distinction between an answer clearly incomplete and partial, and one *ex facie* complete, but really partial and misleading, is illustrated in two cases relating to the same interrogatory, one decided by the Court of Chancery in England, and one by the Supreme Court of the United States. In the American case,[1] the question as to other insurances on the life, and as to other applications for insurance, consisted of four successive interrogatories, as follows:—'Has any application been made to this or any other company for assurance on the life of the party? If so, with what result? What amounts are now assured on the life of the party, and in what companies? If already assured in this company, state the number of policy.' The only answer written opposite this question was '$10,000, Equitable Life Assurance Society.' There was nothing in the position of the written answer to show to which of the four above interrogatories it was intended to apply.

In its form, the answer was clearly responsive, not to the first

[1] Phœnix Life Ins. Co. *v.* Raddin, 120 U. S. 183.

and second interrogatories, but to the third interrogatory only, and fully and truly answered that interrogatory by stating the existing amount of prior insurance and in what company, and thus rendered the fourth interrogatory irrelevant. The view taken by the court was that the legal effect of the issue by the company of a policy upon the answer as it stood was to waive their right to require further answers as to the particulars referred to in the question, and to determine that it was immaterial for the purposes of their contract, whether any unsuccessful applications had been made, and to estop them from setting up the omission to disclose such unsuccessful applications for insurance as a ground for avoiding the policy. The insurers having thus conclusively elected to treat the omission as immaterial, were not to be entitled afterwards to make it material by proving that it was intentional.

In the case of the London Assurance *v.* Mansel,[1] the application or proposal contained two separate questions dealing with the same matter; the first, whether a proposal had been made at any other office, and, if so, where, and second, whether it was accepted at the ordinary premium, or at an increased premium, or declined; and, unlike the American case, contained no third question as to the amount of the existing insurance, and in what company. The single answer to both questions was "Insured now in two offices for £16,000 at ordinary rates. Policies effected last year." There being no specific inquiry as to the amount of existing insurance, that answer could apply only to the question whether a proposal had been made, or to the question whether it had been accepted, and at what rates, or declined; and as applied to either of these questions it was, in fact, but not upon its face, incomplete, and therefore untrue. As applied to the first question, it disclosed only some, and not all of the proposals which had in fact been made; and as applied to the second question, it disclosed only the proposals which had been accepted, and not those that had been declined, though the question distinctly embraced both. The cases are thus clearly distinguishable in their facts. But Mr. Justice Gray, who delivered the opinion of the court in the American case, expresses his dissent from the remarks of Sir George Jessel, M.R., in delivering judgment in the English case, so far as they imply that an insurance company is not bound to look with the greatest attention at the answers of an applicant to the great number of questions framed by the company or its agents, and that the intentional omission of the insured to answer a question will avoid a policy without further inquiry. It is impossible not to see the force of this criticism. If the answer of the applicant is incomplete on its face, the company may if they think it is

[1] 11 Ch. D. 363.

material to their decision, insist on a full answer; and if they fail to do so, it is reasonable that they should be held to have attached no importance to the question, and to have waived their right to found on the omission.

'The same distinction is recognised in regard to applications for insurance against fire, and may be illustrated by the two following cases:—If one applying for insurance upon a building against fire, is asked whether the property is encumbered, and for what amount, and in his answer discloses one mortgage, when, in fact, there are two, the policy issued thereon is avoided.[1] But if to the same question the applicant merely answers that the property is encumbered without stating the amount of encumbrance, the issue of the policy without further inquiry is a waiver of the omission to state the amount.'[2]

II.—(*a*) *Usual provisions in policies avoiding in case of concealment or misrepresentation—Conditional and indisputable policies—Interpretation of usual inquiries.*

We have now considered the effect at common law upon a contract of insurance of (1) fraud; (2) innocent misrepresentation; (3) concealment, apart from any special agreement or condition in the declaration or policy. But as most policies contain agreements modifying these rules, it will be necessary to refer to their usual forms, and consider their effect. In this aspect, policies of insurance on life may be distinguished, on broad lines, as *conditional* and *indisputable*. A conditional policy is one in which the absolute accuracy in point of fact of all statements in the proposal or other documents preliminary to the insurance, is made a condition precedent to any right accruing on the policy. In respect that such a condition excludes the question of materiality of the statements referred to, and makes the assured responsible for information supplied by others, where the insurance is not on his own life, it is more stringent than the common law. An indisputable policy is one which, in one form or another, abandons the insurer's right to dispute the policy, except on the ground of fraud. The exception of fraud as a ground of challenge is always understood, even if not expressed, and the fraud meant is fraud on the part of the assured. To render this division exhaustive, it must

[1] Towne *v.* Fitchburg Ins. Co., 7 Allen, 51. (American.)
[2] Nichols *v.* Fayette Ins. Co., 1 Allen, 63. (American.)

be kept in view that policies may partake of both characters, either in respect of time or as regards the nature of the inquiries made. Of the former kind are policies which are declared indisputable if not challenged within a given period; one, three, or five years being the usual periods. Of the latter kind are those which qualify certain questions, not involving pure matters of fact, but matters of opinion or belief, by words limiting the affirmation to the *bona fides* of the belief or opinion. This form of policy seems, on general considerations, to be the fairest both to the insurer and to the assured. It is quite reasonable that the assured should, as a condition of the validity of his policy, be required to state accurately matters of fact, which he must know or can easily ascertain, and as to which there is no room for difference of opinion. But it is unreasonable to ask an applicant for insurance to give an absolute guarantee of the accuracy of his answers on matters which necessarily involve opinion or belief, or as to which it is impossible that he should have certain knowledge. Of the latter kind is an inquiry whether, at the time of entering into the contract, the life proposed for insurance is afflicted with any disease tending to shorten life, a fact as to which he could only inform himself, as Lord Deas put it, by a *post mortem* examination.[1] We shall see presently that the courts have refused, even where there were no qualifying words, to interpret a warranty of good health as meaning more than freedom from serious disease, necessarily tending to impair the constitution and affect the duration of life. As Lord Mansfield says, such a warranty cannot be taken to mean that the person giving it has not the seeds of disorder.[2]

The effect of qualifying words in limiting an affirmation to opinion or belief, and giving a right to avoid only for intentional inaccuracy is illustrated in Jones *v.* Provincial Insurance Company.[3] In that case the proposer stated, in answer to a question, *that he was not aware* of any circumstance tending to shorten his life, or to render an insurance on his life more than usually hazardous. This statement was, *inter alia*, made the basis of the contract. It was held that the policy could not be avoided unless the information withheld related to a disorder which the assured not only knew of, but which he knew or must have known to be serious and necessarily tending to shorten his life. In the Scotch case of the Life Association of Scotland *v.* Foster,[4] a similar qualification by the words 'in my opinion' was interpreted in the same way, and the statements by the proposer to the company's medical officer, that she was not

[1] Life Association of Scotland *v.* Foster, 11 Macph. 351, 365.
[2] 2 Park on *Ins.* 933 *et seq.* (8th edition).
[3] Jones *v.* Provincial Insurance Co. 3 C. B. (N. S.) 65.
[4] 11 Macph. 351; see also Fowkes *v.* Manchester and London Life Assurance Association, 3 B. & S. 917 (1863).

afflicted with any disorder external or internal, was not held to be falsified by the fact that at the time when she made it she had a small swelling of the groin to which she attached no importance, but which proved to be hernia, and caused her death six months afterwards. In Hutchinson *v.* the National Loan Fund Company,[1] the court went so far as to indicate an opinion that an absolute warranty as to freedom from disease, if unqualified, would be so absurd that a court of law would not enforce it, and they accordingly read in a qualification similar to that expressed in the two cases just referred to. In an American case[2] a similar rule was laid down, and it was said that a warranty of 'good health' denotes nothing more than an absence of any known, ostensible, or felt symptoms of disorder; that such a warranty that a third party is in good health does not mean an actual freedom from disease, but simply that such person has indicated in his appearance and actions no symptoms or traces of permanent disorder, and to the ordinary observation of a friend or relative is in truth well. Therefore, if from the appearance of the life assured he was in good health, so that anybody would so pronounce him, and there was nothing to indicate the contrary, the warranty was not broken, though in fact the germs of a lurking and hidden disease then existed. In the leading case of Thomson *v.* Weems,[3] Lord Watson expresses dissent from the views expressed in Hutchinson's case, and from the proposition that the assured may not agree, if he pleases, that the assurance shall be subject to his being free from disease, whether latent or not, at the date of the assurance. This still leaves it open what is the subject-matter of the warranty and what is meant by good health. The best definition seems to be that it means a state of health free from any disease or ailment that affects the general soundness of the system, not from mere temporary indisposition, not necessarily tending to weaken or undermine the constitution of the assured. It will be seen that this definition does not make the knowledge of the assured of the existence of the disease an essential factor, and is therefore not open to the objection that it implies qualifying words where none are expressed. In Thomson *v.* Weems, the policy was conditioned on the absolute truth in point of fact of all the statements in the proposal. In that instrument the assured stated, without any qualification, that he was temperate in his habits and had always been so. It was maintained that this was necessarily a statement of opinion and belief, and that the policy could only be avoided if it were proved not only that the assured was intemperate, as the term is generally used, but

[1] 7 Dunlop, 467.
[2] Grattan *v.* Mut. Life Ins. Co., 44 Am. Reps. 372.
[3] 9 App. Case 671 (1884).

intemperate in his own opinion. The House of Lords rejected this construction and applied the strict rule that unqualified statements upon the accuracy of which the policy is conditioned must, if the policy is to be sustained, be true in point of fact. It may therefore now be taken as established, that a qualification making any affirmation one of knowledge and belief will not be presumed, if not expressed, except, perhaps, in regard to disorders which may be latent and undiscoverable when the policy is effected. It is therefore necessary, if it is intended only to give a qualified affirmation, to introduce into the answer some such phrase as 'so far as I am aware,' or, 'to the best of my knowledge or belief.'

There is a considerable conflict of decision in America as to the proper interpretation of the usual inquiry, whether the proposer has personally consulted a physician, been prescribed for, or professionally treated within certain periods prior to the date of the proposal. In the most recent case, when the assurance was conditioned on the absolute accuracy of the answers, it was held not to be a valid excuse for withholding information in reply to this inquiry, that, although there had been a consultation with a doctor, it turned out to be unnecessary, and related to an apprehension of disease, and not to real disease. In conformity with this interpretation, it was held that a consultation and prescription for a cold, if not communicated, was sufficient to falsify the warranty.[1] There are a number of other cases dealing with the same inquiry, in some of which the more reasonable interpretation is adopted that those consultations are alone meant, which are necessary and relate to a serious disease or disorder, affecting the soundness of the life and material to the risk.[2]

A policy may be made indisputable, in the sense explained, by a general qualification in the declaration that all the answers in the proposal are accurate to the best of the knowledge and belief of the assured. This was the form of declaration in Wheelton *v.* Hardesty,[3] a leading case on insurance to which we have already referred. It was a case of re-insurance, where the proposal by the company effecting the re-insurance simply referred, as regards certain of the inquiries, to the statements made by the life assured, and by the referees in the original proposal to them. The declaration signed on behalf of the company contained the express qualification that the statements so incorporated were true to the best of their knowledge and belief. It was proved that in the statement by the life assured, referred to in the company's proposal for re-insurance, there were false and fraudulent averments.

[1] Cobb *v.* Covenant Mut. Benefit Association; 25 Am. St. Reps. 619; Metropolitan Ins. Co. *v.* M'Tague; 60 Am. Reps. 661; Etna Law Ins. Co. *v.* France, 91 U.S. 510.
[2] Brown *v.* Metropolitan Life Ins. Co., 8 Am. St. Reps. 894, and cases cited.
[3] 8 E. & B. 232.

It was held that the re-insurance could not be avoided for the falsity of statements made by the life assured; the ground of the decision being (1) that the life was not the agent of the assured; (2) that the declaration, qualified to an affirmation of belief, was not falsified unless it were shown that the person making it was aware of the fraud. An affirmation of opinion or belief will, however, be deemed untrue, not only where the person making it is shown to have had actual knowledge of the real state of the facts, but also where he has made statements recklessly without knowledge of their truth or falsehood, for, as Lord Mansfield said, it is equally false for a man to undertake to say that which he knows nothing at all of, as to say that is true which he knows is not true.[1] But it is not sufficient to show merely that the belief is unreasonable, except as evidence tending to show that it was not really entertained.[2]

Another form of indisputable policy is one in which it is expressly agreed that the policy shall be void and the premiums forfeited if any of the statements in the proposal are false and fraudulent. On the principle of construction expressed by the maxim *expressio unius est exclusio alterius*, this is taken to mean that the policy is avoidable on the specified ground only, and not on any other ground. This form of provision is not, however, so favourable to the assured as that just considered, where the policy is on the life of another, and the statements referred to are made by the life or the referees. False and fraudulent, when applied to certain statements, means false and fraudulent on the part of the person making them, in the case supposed the life insured, and not the person to whom the policy is issued. On the other hand, if the policy is declared to be indisputable, the exception of fraud, whether expressed or implied, refers to fraud of the assured only, or of his agent to affect the insurance, and not to fraud of third parties, such as the referees or the life insured. At common law, as we have seen, the assured is not responsible for false statements by the life or referees, but he is responsible for innocent misstatement by himself, if actually material, or made by agreement the basis of the contract. On the latter account policies entirely unconditional are not so favourable to the assured as those expressly declared to be indisputable except for fraud, or containing provisions in other forms to the same effect.

Where the prospectus of a company contains a representation that all policies issued by the company shall be indisputable, except in the case of fraud, it has been held that the company cannot

[1] Pawson *v.* Watson, Cowper, 785, 788.
[2] Lord Herschell in Derry *v.* Peek, 14 App. Cas. 337, 369.

challenge a policy made on the faith of this representation on any other ground, even if the policy contain express provisions rendering it voidable for innocent misrepresentations.[1] The soundness of this decision is thought to be doubtful, because it seems a proper inference, that where the assured accepts a specific policy contradicting the terms of a general advertisement or prospectus, he has waived his right to the more favourable terms.

A policy on the life of another is made conditional on the absolute accuracy of the information furnished to the company by some such provision as the following:—

'If any of the answers in the proposal or in the statement to the medical officer of the company, above referred to, whether made by the assured or by the life, or if any statements made in connection with this assurance by the medical or private referees of the life, shall be inaccurate in point of fact; or if the inquiries in the said proposal, or in the statement to the medical officer of the company, shall not have been fully answered; or if any material information as to the life assured shall have been withheld by any of the said parties, this policy shall be void and the premiums shall be forfeited.'

This provision should, to be effectual, be inserted in the policy itself, or by reference, as a condition precedent to any right accruing on the policy. A good illustration of the effect of a provision of this kind is to be found in the case of Macdonald *v.* Law Union Insurance Company.[2] In that case A. effected an insurance on the life of X. The proposal contained the question: 'Has the life been proposed for assurance at this or any other office or offices; if so, at what offices? Was she accepted or declined?' To this question A. answered, 'No,' on information received from X. A. did not know that this answer was false, but X. did. There was an agreement similar to that given above in the policy, and under it the policy was held to be avoided. This case forms an interesting contrast to Wheelton *v.* Hardesty,[3] in which the circumstances of the assurance were substantially the same, and the same question was falsely answered by the life, without the knowledge of the assured, but in one case the policy was conditional on the absolute accuracy of the preliminary statements, and in the other conditional only on the *bona fides* of the assured.

[1] Wood *v.* Dwarris, 11 Exch., 493; Wheelton *v.* Hardesty 8 E. & B. 232.
[2] 9 L. R. Q. B. 328 (1874). See also Cazenove *v.* Brit. Equitable Ass. Co. (1859) 6 C. B. N. S. 437.
[3] 8 E. & B. 232 (1858).

made the statements and description in the application a warranty, and further declared that any erroneous representation in any application, survey, or plan, referred to in the policy, or omission to make known a material fact, should avoid the policy. It was held that these provisions taken together were ambiguous, and that, in accordance with the above principle, they must be held to provide for a forfeiture only in the case of a wilful misstatement or concealment, at least in regard to matters which from their nature were matters of opinion and judgment. The question asked was as to the value of the premises insured—a question upon which there might admittedly be difference of view. In giving judgment, the court said:

'Two constructions of the contract may be suggested. One is to regard the warranty expressed in the policy as limited or qualified by the terms of the application. In that view the assured would be held as only warranting that he had stated all material facts in regard to the condition, situation, value, and risk of the property, so far as they were known to him. That is perhaps the construction most consistent with the literal import of the terms used in the application and the policy. The other construction is to regard the warranty as relating only to matters of which the assured had, or should be presumed to have had, distinct, definite knowledge, and not to such matters as values, which depend upon mere opinion or probabilities. But, without adopting either of these constructions, we rest the conclusion already indicated upon the broad ground that when a policy of insurance contains contradictory provisions, or has been so framed as to leave room for construction rendering it doubtful whether the parties intended the exact truth of the applicant's statement to be a condition precedent to any binding contract, the court should lean against that construction which imposed upon the assured the obligations of a warranty. The company cannot justly complain of such a rule. Its attorney, officers, or agents prepared the policy for the purpose, we shall assume, both of protecting the company against fraud, and of securing the just rights of the assured under a valid contract of insurance. It is its language which the court is invited to interpret, and it is both reasonable and just that its own words should be construed most strongly against itself.'[1]

In Fowkes *v.* Manchester and London Life Assurance Association[2] the same rule was applied. The policy contained a proviso that it should be void and the premiums forfeited (1) if any statement in the declaration was untrue, and (2) if the assurance had been effected through any wilful misrepresentation, concealment, or false averment. The policy incorporated the declaration and proposal as part of the contract. The declaration contained the provision that 'if it shall hereafter appear that *any fraudulent concealment or designedly untrue statement* shall be contained herein, the premiums paid shall be forfeited and the policy void.' It was held that, taking the policy and declaration together, the assurance was not avoided by a statement false in fact, but not designedly untrue.

[1] Nat. Bank *v.* Insurance Co., 95 U.S. 673, 678, 679.

[2] 3 B. & S. 917.

Even the use in the policy or the application of the term warrant, is not always sufficient to import an absolute guarantee of the accuracy of all the statements in the application, if from the other parts of the policy or declaration, the warranty is qualified to opinion or belief, or if there are other expressions showing that a strict warranty was not intended. This principle is illustrated in Fitch *v.* American Popular Life Insurance Company, which came before the Supreme Court of New York.[1] In that case the applicant, after various minute and specific inquiries respecting his habits, constitution, weight, what he wore next his skin, the extreme number of glasses of beer, ale, cider, or wine he drank in a day, how much of these beverages, or any of them, he took in a month, whether he drank his tea or coffee weak or strong, whether his hands or feet were usually warm or cold, the colour of the hair, beard, and eyes of various deceased relatives, and, in the language of the court, 'a host of other questions which no human being could with safety undertake to answer accurately and warrant the correctness of his answers,' was asked whether he had ever had any illness, local disease, or injury of any organ. He answered, 'No.' He also stated in reply to the request to name his 'family physician and each one who has given the party medical attendance'—'Have none.' It appeared that some six years before the date of the application he had sustained a temporary injury to the eye by sand being thrown into it, which had produced inflammation. For this he had been treated by a physician, who had also attended him some three years later for some other complaint not mentioned. The application declared that the above answers were warranties correct and true; but the policy contained an averment that it was issued in unconditional good faith, with the just intent of fulfilling all its engagements. It then proceeded to state that fraud or intentional misrepresentation would vitiate the policy; declared the statements and declarations in the application to be warranties and in all respects true; and that they did not suppress any fact relative to the assured affecting the interest of the company, or which would tend to influence the company in taking the risk. To the policy was annexed a notice containing among other matters the announcement that payment would be contested only in the case of fraud.

The court held that the alleged misstatements were not warranties except as to their good faith. That to defeat the policy, it must be shown that they were known by the assured to be false, and were made with fraudulent intent.

[1] 17 Am. Reps. 372. We adopt the narrative of the case given in Barber, *Laws of Ins.* p. 64.

III.—*Doctrines of Waiver and of Agency as affecting the right to avoid policy for misrepresentation or concealment.*

The doctrine of waiver depends on the principle that neither of the parties to a contract can at the same time accept benefit under it, and keep open a right to rescind it against the other. By accepting benefit under the contract in knowledge of the facts which give the right to rescind, or by failure to give notice of the forfeiture to the other party, the party entitled to challenge will be held to have waived his right. If the contract is made by an agent, the agent's knowledge will be imputed to the principal, and the right to avoid may be waived by the acts of the agent, if within the scope of his employment. The scope of the agent's employment is, in general, determined by what he is allowed to do; and no limitation, by private arrangement with his principal, upon the authority the agent ostensibly possesses, will be allowed to affect the position of persons who are not made aware of the limitation.

Upon these principles a failure on the part of the assured to communicate facts, which the agent of the company making out and receiving the proposal for insurance knows, or ought to know, will not avoid the assurance. Nor can the insurer found upon a misrepresentation or even a breach of warranty, as a ground of rescission, if his agent knew when the policy was issued the real state of the facts. This rule is illustrated by a recent English case [1] where the assurance was against accident. The policy was conditioned on the absolute truth of the statements in the proposal. On a claim arising on the policy, the company pleaded in defence that this condition had not been made good in respect that one of the statements in the proposal was untrue. The statement in question affirmed that the applicant was in good health, free from disease, not ruptured, and had no physical infirmity, and that there was no circumstance which rendered him peculiarly liable to accidents. The untruth of this statement was admitted, in respect that the assured was blind of one eye, a circumstance which was, however, obvious to any one looking at him, and necessarily known to the agent who made out and received the proposal. The forfeiture was held not to have been incurred, on the ground that the company must be taken to have entered into the contract with the knowledge possessed by their agent that the assured was a one-eyed man, and to have consented to accept the risk in spite of this infirmity. As a further consequence of the

[1] Bawden *v.* London, Edinburgh & Glasgow Assurance Co. (1892), 2 Q. B. 534.

same view, it was held that the assured was entitled to the sum provided by the policy in the case of total blindness, on his losing by accident the sight of his sound eye.

The same point had previously been decided in an American case[1] not referred to in the English case just cited. In that case the assured was inflicted with deafness. The agent who received the proposal was proved to have been well acquainted with the assured, and aware of his infirmity, and it was accordingly held, as in the English case, that the policy could not be avoided on the ground that the proposal contained a statement that the assured had no mental or bodily infirmity.

In the same way, if the proposal contain a statement that the assured is of temperate habits, the company will not be entitled to plead his intemperance as a defence if their agent was aware, when the statement was made, that it was untrue.

In fire insurance, if the agent of the company himself examines and values the property insured, the policy cannot be afterwards challenged on the ground of over-valuation.

A waiver of a breach of a warranty in the contract will, on the same grounds, be inferred by the acceptance of premiums by the proper official of the company in knowledge of the breach. In a leading case in England,[2] the policy contained a condition that if the insured went beyond the limits of Europe, without the licence of the directors, the policy should become void. The life insured had, in breach of this condition, gone to reside in Canada, but it was proved that this fact had been communicated by the assignee of the policy to the agent of the company authorised to receive the premiums, and that subsequently to this communication, premiums had been accepted from the assignee. It was held that the breach of the condition could not be pleaded by the company. That it was the duty of the agents to have communicated to the head-office the circumstances under which the premiums had been paid to and accepted by them, and that their failure to do so could not prejudice the assured. In accepting the premiums by the hands of their agents, the company were held to have elected to treat the contract as binding. If, however, the policy expressly provides that it shall not be competent for local agents to waive any of the conditions of the policy, this is a valid limitation upon their authority of which the assured will be deemed cognisant if it is expressly set forth in the policy he receives.

A mere suspicion on the part of the company that fraud has been used to induce the contract, or that one of the conditions of the contract has been broken, has been said not to impose on the com-

[1] Follette *v.* United States Mutual Accident Association (1890), 22 Am. St. R. 878.
[2] Wing *v.* Harvey (1854), 5 De. G. M. & G. 265.

pany an immediate duty to investigate and challenge. But to do so would be the safer course.[1]

The fact that a policy is in the hands of an assignee is not a defence to a plea that it was obtained by misrepresentation or concealment by the original holder. Any ground for recission pleadable against the original holder is pleadable against the assignee.[2] But if the company consent to the assignment, or receive a notice of assignment without objection, this will amount to a waiver of any right of challenge known to the company at the date of the assignment.[3]

The principle of the law of agency, that representations made to the agent are made to the principal, also applies in favour of the assured if his answers are incorrectly reported by the company's agent to the head office. The falsification of the proposal by the agent may either be inadvertent or intentional. In the latter case he is usually acting in his own interest and not in that of the company, for the purpose of securing his commission by representing the life proposed as insurable when in point of fact it is not, and so inducing the company to issue a policy. The only cases in which the precise point is raised are American, and their result is to establish the rule that if the assured is not a party to the fraud practised on the company, and has not contributed to it by his negligence, he cannot be prejudiced by the agent's fraud or mistake. If the representations made to the agent are accurate, the company will not be permitted to found on his fraud or mistake in failing to report to the company the answers of the assured in the form he received them. Thus although the proposer is in general bound to read what he signs, and will not be allowed to deny the correctness of written statements signed by him, there is an exception to the rule if his omission to read is due to the representations of the company's agent, either that the proposal was a mere formality and might be signed in blank, or that the duty of filling it up correctly might be left to the agent. Similarly the rule will not apply if the proposer is blind or unable to read, or if otherwise he omits to read in circumstances not involving negligence on his part.[4]

What constitutes an excusable failure in this respect is illustrated by a recent American case.[5] The application contained the

[1] Scottish Equitable Life Ass. Soc. *v.* Buist, 4 Rettie 1076, 1081; and note 17 Am. St. R. 247.

[2] Scottish Equitable Life Ass. Soc. *v.* Buist, *supra.*

[3] Hale *v.* Union Mut. Fire Ins. Co., 64 Am. Dec. 370.

[4] See, *inter alia,* Continental Insurance Co. *v.* Pearce, 7 Am. St. R. 557 and note; German Insurance Co. *v.* Gray, 19 Am. St. R. 150; Brown *v.* Metropolitan Life Insurance Co., 8 Am. St. R. 894. As to insured's duty to read, see Ryan *v.* World Mutual Life Insurance Co., 19 Am. R. 490; N. Y. Life Ins. Co. *v.* Fletcher, 117 U.S. 519.

[5] Equitable L. Ins. Co. *v.* Haylewood, 16 Am. St. R. 893.

usual provision, by which it was agreed that all the foregoing statements and answers, as well as those made or to be made to the society's medical examiner, were warranted to be true, and were offered to the society as a consideration for the contract. Attached to the application was the medical examiner's report, signed at the beginning by the assured, and at the end by the medical examiner. In this document, between the two signatures, there were a great number of questions and answers relating to the history of the applicant, and of his ancestors, and collateral kindred, and to his physique, system, general health, and environment. The answers were generally yes or no, and from the space allowed for them in the printed form it was evident that they were meant to be monosyllabic. Some of the answers did not represent information received directly from the applicant, but were the result of scientific inference from his statements, and all the answers were written down by the medical examiner. The court negatived the idea that in these circumstances it was the duty of the applicant to supervise the medical officer of the company in writing down the answers. That even if the applicant warrants the truth of his answers, this is a warranty of their truth as given, and not a warranty that they shall be correctly written down and transmitted to the company by their agent. They accordingly held that the answers given being true, there was no breach of warranty by reason of their being incorrectly written down and reported by the medical examiner.

The attempt has been made by some American companies to avoid this responsibility for the fraud or mistake of their agents by the insertion of special provisions in the policy intended to throw this responsibility on the assured. These provisions take the form either (1) of a stipulation that the agent negotiating the application shall be deemed the agent of the assured; or (2) that the statements in the application as written and submitted to the head-office shall be deemed the statements of the applicant, and shall alone bind the company. The authorities are practically unanimous in holding that neither of these provisions affects the real relation of agency between the company and its canvassers, or entitles the company to avoid for false statements in the application inserted by the company's agent without the knowledge or complicity of the assured. In regard to the first it has been said that if this stipulation can substitute the assured for the company as the principal of the agent, then it is competent for a person to make a contract with his own agent which shall bind a third party. In another case it was said that if the agent was in fact the agent of the company in the matter of making out and receiving the application, he cannot be

converted into the agent of the assured by merely calling him such in the policy subsequently to be issued. It may be added that if the agent is in point of fact the agent of the company, no mere form of words can affect the rule, that representations made to him are made to the company.[1]

On the same principle it would appear that if under the second provision accurate statements are made in writing to the company's agent, and are read over and signed by the assured, the policy will not be void if the agent, for any reason, fabricates different answers over the applicant's signature, and transmits them to the company. The second provision, therefore, only emphasises the duty of the applicant, if he does not write down his answers himself, to read over what has been written to his dictation by the company's agent before signing the declaration, a duty which is, in general, incumbent upon him apart from any stipulation. This was the main ground of the decision in a recent case in the Supreme Court of the United States,[2] where the policy contained a stipulation substantially to the same effect as the second of those to which I have referred, providing that no information given to the persons soliciting or taking the application for the policy should be binding on the company, or in any manner affect its rights, unless reduced to writing, and presented to the home office in the application. The assured, in reply to questions by the agent, made answers which, if correctly reported by the agent to the head-office, would probably have caused the company to decline the life. The agent, without the knowledge of the applicant, wrote down and transmitted to the head office of the company false answers which the applicant signed without reading, and the company accepted the proposal. Along with the policy the application was sent to the assured for revisal, but he failed to revise it, and consequently to discover that his answers had not been accurately recorded. It was held that the policy was void, mainly on the ground that in not reading the application, when sent to him for revisal, he had contributed by his neglect to the agent's fraud. It was also held that the above stipulation limited the agent's powers to the extent of placing on the applicant the duty of giving his answers in writing, and displacing the usual presumption that verbal statements made to the agent are made to the company. In giving judgment in the case the court deals

[1] Continental Ins. Co. *v.* Pearce, 7 Am. St. R. 557, 560; Gans *v.* St. Paul, F. & M. Ins. Co. 28 Am. R. 535; Planter's Ins. Co. *v.* Myers, 30 Am. R. 521; Kausal *v.* Minnesota, F. M. F. Ins. Assn. 47 Am. R. 776; Whited *v.* Germania, F. Ins. Co. 32 Am. R. 330, and cases cited in note 77 Am. D. 724, and in May on *Insurance* sec. 140 (2nd Edn.); *contra* Rohrback *v.* Germania F. Ins. Co. 20 Am. R. 451; Alexander *v.* Germania F. Ins. Co., 23 Am. R. 76.

[2] New York Life Ins. Co. *v.* Fletcher, 117 U.S. 519.

with the duty which attaches in all cases to the applicant for insurance to read over his application, as follows:—

'But the case as presented by the record is by no means as favourable to him' (the assured) 'as we have assumed. It was his duty to read the application he signed. He knew that upon it the policy would be issued, if issued at all. It would introduce great uncertainty in all business transactions if a party making written proposals for a contract, with representations to induce its execution, should be allowed to show, after it had been obtained, that he did not know the contents of his proposals, and to enforce it notwithstanding their falsity as to matters essential to its obligation and validity. Contracts could not be made, or business fairly conducted, if such a rule should prevail; and there is no reason why it should be applied merely to contracts of insurance. There is nothing in their nature which distinguishes them in this particular from others.'[1]

In the same way if the assured accept a policy, expressly referring to a written application signed by himself, he ratifies its contents.[2]

The effect of fraud or inadvertence on the part of the company's agent is, however, sometimes to prevent a contract being concluded between the insurer and assured. Thus in a recent American fire insurance case[3] the policy unambiguously described a tenant-house as the subject insured, and the court refused to allow a recovery on the policy in respect of damage by fire to a mill also belonging to the assured, although it was proved that in the negotiations with the company's agent the applicant had arranged for insurance on the mill and not on the tenant-house, and that the description of the tenant-house as the subject insured in the policy was a mistake on the part of the company's agent. It was held that there was no contract; that the written description in the policy, not being ambiguous, could not be varied by extrinsic proof, and that a contract insuring a subject A could in no circumstances whatever be read as an insurance on a subject B. That as the assured had intended to insure one subject, but the written contract insured another subject, there was an entire absence of the *consensus in idem* which is essential to the formation of a contract.

[1] 117 U.S. p. 529.
[2] Richardson *v.* Maine Ins. Co. 74 Am. Dec. 459.
[3] Saunders *v.* Cooper, 12 Am. St. R. 801.

The Present Position of the Silver Question

BY

PROFESSOR J. SHIELD NICHOLSON

The Present Position of the Silver Question.

(*Read before the Actuarial Society of Edinburgh, 1st February* 1894.)

THE Silver Question, as it is called, like the Land Question and the Labour Question, is really a group of several complex and difficult problems, and it would be absurd to attempt to give in an address of a popular kind an adequate account even of the main issues in the controversy. I have used the term popular with some trepidation, for after many attempts I doubt if it is possible —at any rate for me—to give even the semblance of popularity to the intricacies of the currency. In the whole subject there is, I believe, only one recognised joke, namely, that any considerable attention given to it is sure to end in lunacy, and a good many people imagine that this is not a joke at all, but a very solemn warning. Again, there is no scope for quoting little bits of poetry which are often so effective in popular discourses. The only lines I ever felt inclined to quote are those of the well-worn couplet—

> He that complies against his will
> Is of his own opinion still.

There is no one so stubborn in opinion as the budding lunatic of currency. It is obvious that a problem which in some parts can be most clearly explained by the use of algebraic symbols will not readily lend itself to eloquence, and the statistics of foreign countries are not likely to arouse enthusiasm in the insular mind. In fact, a careful survey of the different devices for making an address popular leads to the conclusion that in currency only one is available. Being the only one, it has naturally been very widely adopted. The device I mean is that of abuse—both general and particular—the kind of abuse that is generated in controversies in politics or religion. The worst of it is, however, that just as in virtue of my position I am not obliged to serve on a jury, so I am precluded from abusing my opponents; I am expected to set forth my own opinions and the opinions of my opponents with equal impartiality and judicial calm. If, for example, I were to call Sir

William Harcourt the Bombastes Furioso of Mono-metallism, as Mr. Chamberlain called him the other day the Bombastes Furioso of contemporary politics—what is vigorous from the statesman would seem insolent from the professor. Accordingly, with the proper preference of duty to pleasure, I shall dispense with this last aid to popularity, and trust to your indulgence if I fail to make myself interesting or intelligible.

In the first place, then, let me explain exactly what I mean to do. I shall endeavour to impress upon you the reality and magnitude of the evils which have given rise to the controversy, and to show that the present monetary position is one of grave danger. In this way some of you may be induced to take into consideration and study carefully the principal remedies that have been proposed. I will begin with an instance that admits of no dispute—I refer to the difficulties and dangers of the present situation,—namely, the case of the government of India. When you see in the money article of a newspaper that the rupee has fallen a penny, it may seem a very insignificant matter, but you must remember that the revenues of India are reckoned in millions of tens of rupees, and when ten rupees at the old rate were about equal to a pound this was readily understood. Now the Government of India has to remit to England from sixteen to eighteen million pounds sterling per annum, and the lower the rupee falls the more rupees must be sold to make up the amount. During the financial year 1892-3, India was obliged to remit eight million seven hundred thousand tons of rupees more than if the exchange had remained at the rate of 1873-4, before the fall in the rupee began. If you convert that sum into sterling at the actual rate of about 1s. 3d. this amounts to nearly five and a half millions of pounds. Consider the difficulties of the Indian Budget. At an estimated rate of exchange of 1s. 4d. for 1892-3, there was a surplus revenue of Rx. 146,000. The exchange having fallen to 1s. 3d. this surplus was converted into an estimated deficit of Rx. 1,081,900, notwithstanding an improvement in the revenue of Rx. 1,653,000 over the Budget estimate. I may mention that this deficit reckoned in sterling is upwards of £600,000.

In considering the difficulties of the Indian Government we must bear in mind that India is a very poor country. People in this country are apt to suppose that the contrary is the case. They remember vaguely the allusions of the poets, as for example Milton's description of the throne of Satan—'which far outshone the wealth of Ormus and of Ind'—and they recall the immense riches of Warren Hastings and the Nabobs of last century—and they think India teems with wealth. What India does teem with is millions of people who live on what would not support the ninth

part of a man in this country. India is so poor that she is periodically threatened and visited by famine. An examination of the revenues of India shows that it would be very difficult if not dangerous to attempt to increase taxation. More than a fourth of the revenue is derived from land, and is of the nature of a fixed rent. Some rents are actually permanently and definitely fixed, and most of the rest are fixed for thirty years. The next most important item is the salt-tax—about ten per cent. of the revenue is derived from this source. In spite of some recent reductions the tax on salt is now about 600 per cent. *ad valorem.* Now the tax on salt is a very grievous tax—it offends against all the recognised principles of sound taxation. It presses most heavily on the poor. To increase this tax would spread discontent throughout the country. Again, in India an income of Rs. 500, at the present rate of exchange about £30 a year, is subject to income-tax, whilst in our own country all below £150 are free, and below £400 partially exempt. It is calculated that if the income-tax in India were doubled it would only yield about one and a half million of tens of rupees, or less than a million sterling. Similarly, if we go through the other items of revenue we are forced to the conclusion that to increase taxation to any considerable extent would be economically difficult and politically dangerous. The payments made by India to England, although for the most part they have been incurred for services rendered of the greatest importance for the well-being of India, for defence, public works, government and the like—are popularly spoken of as 'tribute.' To increase this so-called 'tribute' simply to meet a falling exchange would, as the Report of Lord Herschell's committee points out, afford an inviting theme for agitation.

An inquiry into possible economies of expenditure does not yield more satisfactory results. The cautious and well-balanced words of the Report are worth quoting: 'Although, therefore, we feel strongly the necessity for the utmost care in restricting expenditure, we are certainly not in a position to conclude that any economies are possible which would enable the Indian Government to meet successfully the great and growing deficit caused by falling exchange.'

I pass over the injury inflicted on private individuals who have to make remittances to the home country, *e.g.*, civil servants and officers for the support and education of their children; but I should like to notice briefly one popular fallacy on the subject. It is said that they receive compensation in effect because gold prices have fallen on this side, and that a sovereign has greater purchasing power. That the gold prices of the great staples of trade have fallen, I not only admit, but shall have to insist on at

some length presently, but most of the chief sources of expense to the family of an Indian official in the home country have not fallen in anything like the same proportion, *e.g.*, house-rent, education, travelling expenses. And it is well known that retail prices do not follow wholesale prices very quickly or very accurately.

I pass over also the check that is imposed on the advance of British capital to India through the fear that it cannot be withdrawn except at a loss, and that the interest will be paid in coins of decreasing value.

And I say nothing of the difficulty of carrying on trade between the two countries—though this is an element of great importance, as the manufacturers of Lancashire and Dundee know to their cost. It is enough for the present purpose to fix the attention on the reality of the evils caused by the fall in silver to the Indian Government.

About the end of June, last year, the Government became seriously alarmed at the prospect of a still further fall in exchange through the anticipated action of the United States in the repeal of the Sherman Act. It was felt that something must be done, and in an evil moment, as events have proved, India suddenly closed its mints to silver.

The idea was that by the principle of limitation an artificial value could be given to the rupee, that exchange would be steadied even if not raised, and that the Government would be able to make its remittances to England without loss. It is quite true that for a time the rupee rose in value above the corresponding weight of silver which hitherto had governed its price, and the exchange was steadied to the advantage of importers into India. But the very object the Government had in view was not achieved. Instead of making its remittances to this country at a cheaper rate, it has not been able to make them at all; the exchange was only kept up because the Government did not sell its bills. But it was obliged to meet its expenses, and this it has only been able to do by increasing its gold debt in London. It is plain, however, that India could not go on paying interest by increasing debt, and accordingly it was announced on the 20th January last that tenders for Council bills would be considered on their merits. The immediate effect was that for the time trade with India was paralysed, silver suffered a further fall, and in spite of the closure of the mints, the rupee has reached the lowest point on record. In a word, then, the Indian Government is worse off than ever.

But before this last crisis, the action of the Government in closing the mints and not selling Council bills had an extraordinary effect on the trade of India. From the beginnings of that trade with the establishment of the East India Company nearly three

hundred years ago, India had a favourable balance of trade, her exports of merchandise exceeded her imports, and on balance she absorbed large quantities of silver and gold. The closure of the mints destroyed this favourable balance of trade. The subject is one of considerable theoretical difficulty, and I have so recently discussed it in another place that on this occasion I need only notice dogmatically the principal effects. An artificial stimulus has been given to the other silver-using countries comprised under the title of the Far East, to the prejudice of India; China and Japan have gained what India has lost. For a time, it is true, Lancashire manufacturers gained by the rise of exchange with India, but then, *per contra*, they suffered through the fall in silver in their trade with other silver-using countries.

To bring this part of the subject to a conclusion there is little doubt that the closure of the Indian mints will ultimately make exchange worse than before, and if no better remedy is provided, before the rupee can be permanently raised to a scarcity value, India may be face to face with bankruptcy, or with a social revolution due to increased taxation or contracted expenditure. I do not wish to exaggerate—I will simply suppose these alternatives are possible. Even the bare possibility is a danger of the utmost magnitude. India is part of the Empire, and our statesmen are responsible for its good government. It is the home Government which is really responsible for the recent financial policy, which has proved such a lamentable failure.

The action of India was precipitated by the expected action of the United States, and I will take the second example of the evils of the fall in silver from that country. And before going further, allow me to make one general remark on the question as affecting foreign countries. Some people—even statesmen in high office—adopt a very short and easy method with this part of the subject. They say: Let the foreigner take care of himself; we are safe with our gold standard; besides, we are a creditor country, and the more gold appreciates so much the better for us. This is a survival of the old prejudice, which looked on the foreigner as an enemy to be injured as much as possible; of the exploded fallacy that the best way to advance our prosperity was to injure that of our neighbours. But the truth is, that in these days no country can shut itself up in this Chinese-like isolation, and least of all can this country. We depend on the foreigner for the greater part of our food and of our raw material; we live as a nation upon our foreign trade. And what is true of trade is equally true of money and credit. Isolation, or, if you prefer it, independence, is impossible except in name. A commercial crisis in one country vibrates with the speed of electricity through the rest of the world. Take

a recent illustration of a panic which was only averted by a policy of doubtful wisdom—I mean the Baring crisis. The essence of the affair was this. To prevent what was expected to be the greatest financial panic of the century, the Bank of England was obliged to borrow some two millions of gold from the Bank of France, simply because a private English firm had made imprudent investments in South America. Or again, take the case of Australia, which is not yet a thing of the past—and you see that the monetary troubles of a distant colony may be reflected to the home country.

I do not mean to imply that all the financial troubles of the last twenty years are due to the fall in silver—all I intend to insist on, is that our interests in trade, money, and credit, are so inextricably blended with those of foreign countries, that anything which affects them directly or indirectly must affect us.

The events in the United States are so recent, and created so much attention at the time, that it is only necessary to allude to the principal features. In 1873—(from 1792 there was bi-metallism) —the coinage of silver was stopped by Act of Congress, but in 1878 it was resumed by the Bland Act, by which the Secretary of State was directed to purchase and to coin into standard dollars at a ratio of 16 : 1, not less than two million dollars worth nor more than four millions of silver bullion each month. Under this Act the Government purchased 291,292,019, ounces of fine silver at a cost of 308,199,162 dollars (say £60,000,000 sterling), and coined it into silver dollars to the amount of 378,196,173 dollars (£76,000,000, at par value).

In June 1890, the Senate passed a bill for the unrestricted coinage of silver for individuals into legal dollars at 16 : 1, and the issue of paper certificates against such dollars. Seeing that it was probable this would pass the Lower House on July 14, 1890, the Sherman Act was passed as a compromise. According to this the monthly purchase of silver was raised to 4,500,000 ounces of silver, and the coinage into dollars of 2,000,000 ounces of this silver was made compulsory until July 1891, the actual coinage after that date being left to the discretion of the Secretary of State. Under this Act, from August 13, 1890, to June 1, 1893, 152,413,792 ounces of silver were purchased at a cost of 143,591,569 dollars (£28,000,000). Of this there were coined into silver dollars 30,087,040 dollars, making the total coinage of silver dollars (including the re-coinage of trade dollars into standard dollars), from February 1878 to June 1893, 419,332,305 dollars (£84,000,000), or more than 50 times as much as was coined during a previous period of 81 years, leaving in the Treasury 123,911,185 ounces of fine silver, which is absolutely useless at

tions this fall may be placed for the present as at least 30 per cent.; that is to say, on the average the prices of the great staples of trade, the principal wholesale commodities, have fallen below the level of 1873 some 30 per cent.

There can, I think, be no doubt that the greater part of the fall is due to the direct and indirect effects of the demonetisation of silver and the stoppage of the mints to free coinage of silver legal tender. Otherwise it seems impossible to account for the fact that year by year, with trifling exceptions, the fall in the gold value of silver has been coincident with the fall in the gold prices of commodities. The two things must be in some way connected; the policy and the events that have caused the one must also have caused the other.

The fact of the appreciation of gold is so generally admitted by competent authorities, including those who take different views of the remedies, *e.g.* Dr. Gairdner, Mr. Goschen, and Dr. Giffen on one side, and Sir D. Barbour, Mr. A. J. Balfour, Professor Sidgwick; that I do not propose to enter into the evidence or the methods of calculation. What I wish to direct attention to is the evils of this appreciation or of this general fall in prices.

I am sure some of you will prick up your ears and begin to eye me with suspicion when I speak of the evils of a fall in prices. Is not cheapness a boon to every consumer, and are we not all consumers? Why then should we complain if things have become cheap?

The answer is, it depends on the causes of the cheapness. What are the cheapest things you can buy? Are they not at the forced sale of a bankrupt stock? Well, now suppose that, to take an extreme case, everybody, traders, manufacturers, dukes, and private people, all at once became bankrupt. Then I take it you would have cheapness on such a scale as never was seen since gold and silver were coined. The cheapness would be astounding and unquestionable, and equally so would the ruin and misery of the nation.

Or again, suppose that the anarchists had their way and private property was abolished, for the time being things could be had for the picking up; they would be as cheap as blackberries in their season. But the season would not last very long.

I have taken these extreme illustrations because they make it perfectly clear that cheapness may be a sign of something wrong just as much as of something beneficial. If the cheapness is due to greater efficiency of labour and capital, or to the bounty of nature, or to the opening up of new markets, then no doubt it is a good thing. But if the fall is due to causes affecting the currency or the measure of value, then there is no such advantage.

The countries that form the Latin Union—France, Belgium, Italy, etc.—have also large masses of silver, full legal tender, the metallic value of which is at this moment about half its nominal value. France, it is true, has an immense stock of gold, but her debt is enormous and has been rapidly increasing. Italy has very little metallic money of any kind in circulation; her notes are depreciated, and she is at the end of her resources in taxation. If the Latin Union were dissolved she would be bound to pay for the silver coins held by the other countries at their gold value at the nominal rate. She would probably be unable to do so.

Germany has not yet disposed of all the demonetised silver, and has besides a quantity of over-valued silver, full legal tender, —about £20,000,000 of old thalers.

In this country silver is only token coinage, limited in quantity and limited in paying power. As a matter of fact a considerable profit has been made by coining the cheap silver; the metallic value at present is considerably less than half its nominal value.

Now it is perfectly true that every country can keep in circulation a certain amount of notes without any reserve, and a still greater amount with comparatively a small reserve. Similarly also a quantity of silver may be kept in circulation at a nominal value as in the countries just cited. But there are limits which cannot be over-stepped without danger. It is true the Governments are not likely to coin more silver, *i.e.* full legal tender, but the profits on such coinage are enormous. If ever spurious coinage was resorted to on a large scale the silver would become depreciated and the holders would rush in a panic for gold. Even apart from this danger—which some affect to think light of—it is quite possible at any moment that a further depreciation of silver coupled with a financial crisis might create a distrust of the silver coins and of the notes based on silver. I have pointed out how in America the silver notes were exchanged for gold and the danger point of a premium on gold was almost reached.

I think, then, it will be generally admitted that even looking at the question in its purely monetary aspects, the depreciation of silver is an evil which may result in still further evils. Silver constitutes more than half of the full legal tender of the world, and a drop to half its former value in gold must have serious consequences.

But the depreciation of silver is only half the silver question, the other half is the appreciation of gold. Here the evils, though not so simple and obvious, are, in the opinion of many, even more serious. By an appreciation of gold is meant a general fall in the prices of commodities reckoned in gold. From various calcula-

harmony of this kind is in all seriousness extremely improbable, and that it is much more scientific to suppose that the fall in silver and the fall in commodities are causally connected, especially when we remember that these improvements were going on in the twenty years before 1873 just as much, and prices of commodities steadily rose all the time.

I have no time to illustrate in detail the evils due to an appreciation of gold caused by currency disturbances. The central evil—the parent of the whole series—is that the real meaning of contracts is insidiously altered. The burden of all debts, national, municipal, and private, is increased; to pay the same amount of gold involves a greater strain. Take the case of farmers. They cannot pay the same rent, and before the adjustment is made they may be ruined. For not only the rent, but all other expenses, must be adjusted to this change in the standard. So difficult has this adjustment been found, that throughout the gold-using world, agriculture, which in nearly every country, including our own, is the most important industry, is in a most depressed condition.

I must now bring to a close this imperfect survey of the present position of the silver question. I have endeavoured to show, in the first place, that, looking merely to the fall in the gold price of silver, there are serious evils and more serious possibilities. In the East, India is threatened with a deficit, and our trade is subjected to periodical dislocation. In the West, the masses of full legal tender silver held by various countries might in a commercial panic lead to a financial disaster of the worst kind. You remember the warning of M. de Rothschild at the Brussels Conference a little more than a year ago: 'If this Conference were to break up without arriving at any definite result, there would be a depreciation in the value of silver which it would be frightful to contemplate, and out of which a monetary panic would ensue, the far-spreading effects of which it would be impossible to foretell.' It is true the panic has not yet occurred, but that all the elements are ready is, I am afraid, indubitable—*e.g.* Australia.

But we have also to deal, as I have tried to show, not only with the depreciation of silver, but with the appreciation of gold. Many countries are already over-burdened with taxation, and they must submit to greater burdens or else repudiate their obligations.

Of the possible remedies I have said nothing. My primary object has been to convince you that the question is serious, and is deserving of serious study. In my own mind I have no doubt that as the evil was created by political action, so also it can only be remedied by international agreement. After twenty years of leaving things to settle themselves the situation is worse than

Now, I think it may be taken for granted—for it is admitted by the best authorities on both sides of the silver question—that the fall in gold prices since 1873 is due to currency disturbances. Opinions may vary as to the precise nature of the mode of operation; some lay stress on the relative scarcity of gold compared with the work it has to do; others lay more stress on the indirect effects of the depreciation of silver; but there can, I think, be no question that the fall in gold prices can only be accounted for by the series of events which began with the German demonetisation of silver, and has ended—for the moment—with a closure of the mints of India and the United States.

If you construct two curves—one showing the fall and the fluctuations in silver, and the other the fall and fluctuations in the gold prices of commodities—you cannot doubt the connection. You cannot get so many accidental coincidences and uniformities over twenty years.

Many people, however, still persist in separating the question into two halves, and in giving answers to each independently, which they fail to see are really contradictory. You ask them to account for the fall in the gold price of silver; they are quite prepared; they point to the enormous production of America and other places, and to the sales by Germany, and the closure of the mints by one Government after another. Surely, they say, when the supply increases and the demand falls off, the price of silver, like the price of anything else, must fall; surely these causes are quite sufficient to account for its fall. And I quite agree. Well, then, you ask them about the fall in the prices of commodities reckoned in gold, and they reply: The causes are improvements in production and communication. Here, however, I take issue with them.

Is it not, I ask, very odd that these improvements should have been made by a series of steps which correspond exactly to the steps in the fall of silver, which are due to quite different causes? Consider some of them: Germany demonetises silver—first improvement (what shall I say), steamers economise coal; the Latin Union close their mints—second improvement (now what shall I say), steamers increase their speed; the production of silver steadily increases—third improvement, there is a corresponding extension of telegraph wires; silver rises on the passing of the Sherman Act—there is a check to the improvements, great explosions of boilers and destruction of wires; silver again falls rapidly—immense improvements take place in the textile machinery; lastly, India and America close their mints; but it is as yet too soon to give the corresponding improvements in production and communication.

I think, on reflection, you will agree that a pre-established

harmony of this kind is in all seriousness extremely improbable, and that it is much more scientific to suppose that the fall in silver and the fall in commodities are causally connected, especially when we remember that these improvements were going on in the twenty years before 1873 just as much, and prices of commodities steadily rose all the time.

I have no time to illustrate in detail the evils due to an appreciation of gold caused by currency disturbances. The central evil—the parent of the whole series—is that the real meaning of contracts is insidiously altered. The burden of all debts, national, municipal, and private, is increased; to pay the same amount of gold involves a greater strain. Take the case of farmers. They cannot pay the same rent, and before the adjustment is made they may be ruined. For not only the rent, but all other expenses, must be adjusted to this change in the standard. So difficult has this adjustment been found, that throughout the gold-using world, agriculture, which in nearly every country, including our own, is the most important industry, is in a most depressed condition.

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Diagram Illustrating Table 4.

Assurances in Force 1870 to 1892

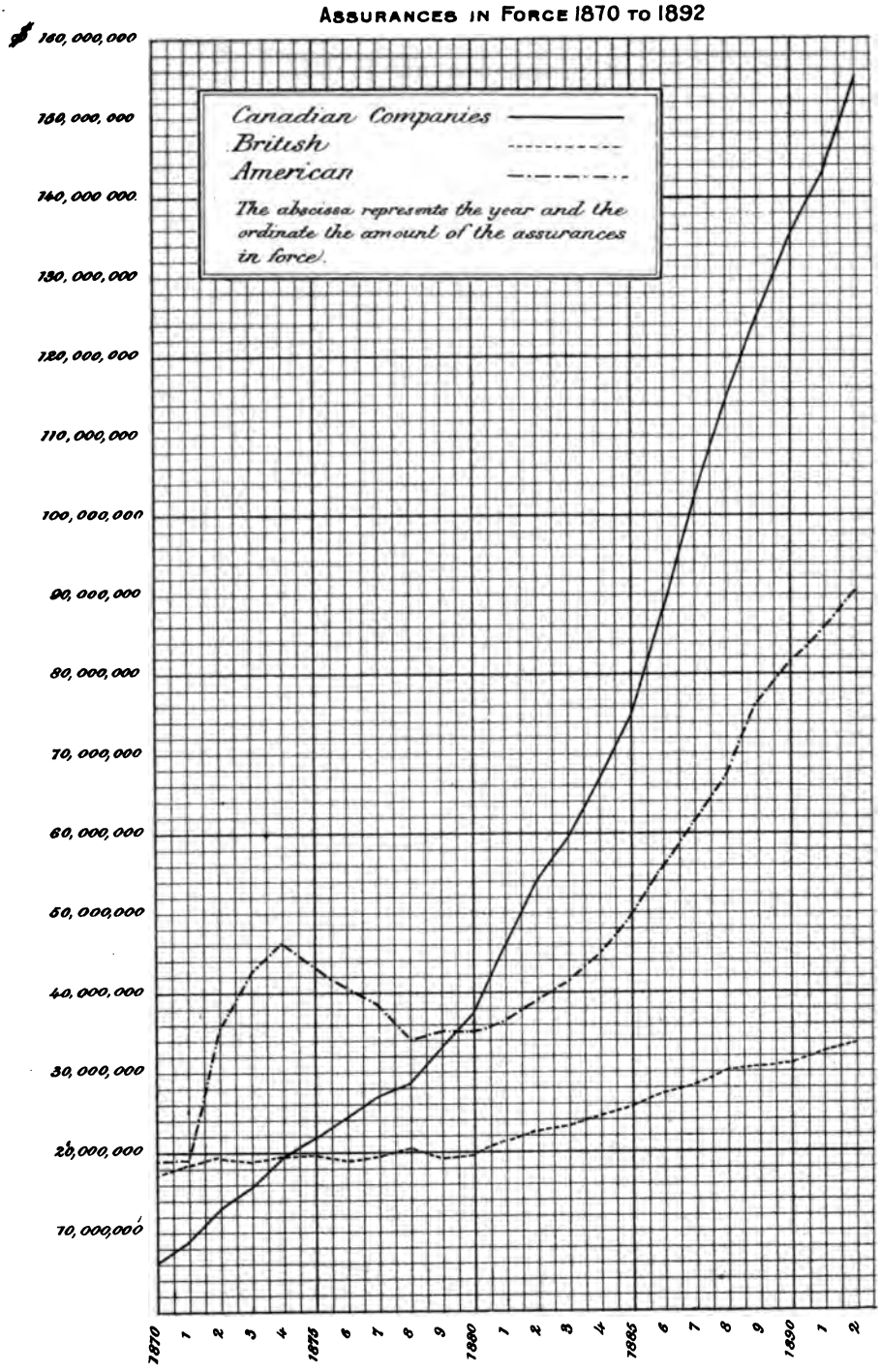


Diagram Illustrating Table 3.

Premium Income 1870 to 1892

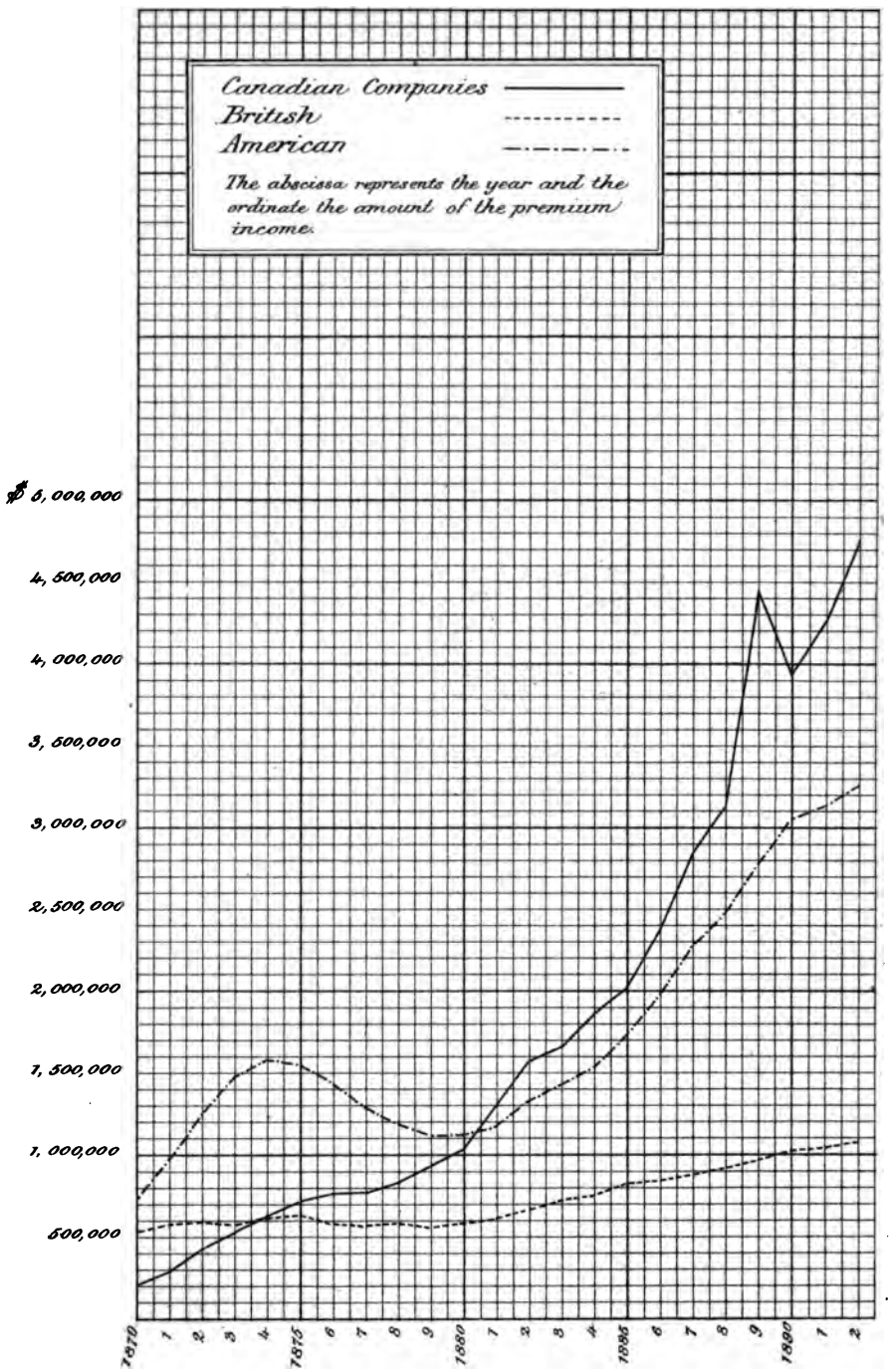
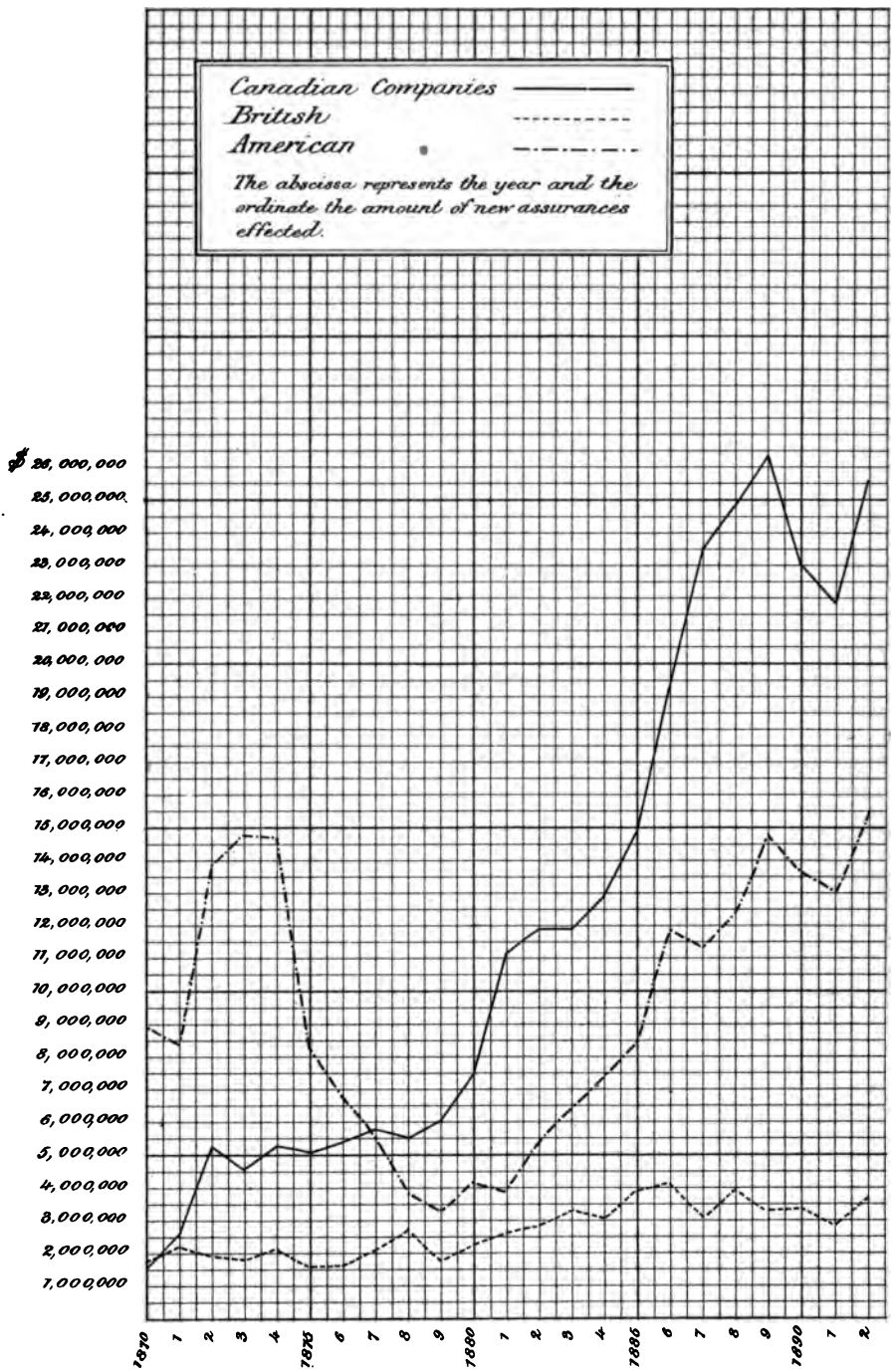


Diagram Illustrating Table 2

New Assurances Effected 1870 to 1892



Life Assurance in Canada.

(*Read before the Actuarial Society of Edinburgh, January 11th*, 1894.)

Introduction.

BEFORE proceeding to trace the origin, growth, and present position of Life Assurance in Canada, it will be necessary to give some idea of the size, population, and vital statistics of the Dominion in order to better appreciate the developments of the past and the possibilities of the future.

The Dominion of Canada consists of the Provinces of Ontario and Quebec (formerly Upper and Lower Canada), New Brunswick, Nova Scotia, Prince Edward Island, British Columbia, Manitoba, and the North-west Territories. The area of the whole Dominion is about 3,456,383 square miles, including the water surface. From west to east it is about 3500 miles, and from north to south 1400 miles. The Island of Newfoundland, although included in British North America, does not yet form part of the Dominion; while Alaska belongs to the United States, and Labrador is under the control of Newfoundland. The area of Europe is about 3,661,360 square miles, and of Great Britain and Ireland 120,849 square miles, so that Canada is only about 200,000 square miles smaller than all Europe, while it is nearly twenty-nine times as large as the whole United Kingdom. It is also 400,000 square miles larger than the United States, omitting Alaska.

Population.

Although a census had frequently been taken of different portions of Canada at different times since 1665, yet the census of the

Dominion has been taken on only three different occasions, viz., in 1871, 1881, and 1891. According to the census, the population was 3,635,000 in 1871, 4,325,000 in 1881, and 4,833,000 in 1891.[1]

The following Table will show the population of each province and the rate of increase:—

POPULATION IN 1871, 1881, AND 1891.

Province.	1871.	1881.	Increase per cent.	1891.	Increase per cent.
Ontario, . . .	1,620,851	1,926,992	18·6	2,114,321	9·93
Quebec, . . .	1,191,516	1,359,027	14·0	1,488,535	9·53
Nova Scotia, . .	387,800	440,572	13·6	450,396	2·22
New Brunswick, .	285,594	321,233	12·4	321,263	0·00
Manitoba, . .	18,995	62,260	247·2	152,506	144·95
British Columbia, .	36,427	49,459	36·4	98,173	98·49
Prince Edward Island,	94,021	108,891	15·8	109,078	0·17
The Territories, .	...	56,446	...	98,967	75·33
Total, . . .	3,635,024	4,324,810	18·97	4,833,239	11·74

The rapid development of Manitoba, British Columbia, and the Territories during the last ten years, as shown in the foregoing table, is in strong contrast to the stationary population of New Brunswick, and the slow growth of Prince Edward Island and Nova Scotia. Of the 4,833,239 persons in Canada at the 1891 census, 86·6 per cent. were born in Canada; 10·1 per cent. were born in British possessions, and only 3·3 per cent. were born in foreign countries, the foreigners being largely composed of emigrants located in Manitoba and British Columbia. The number of persons per square mile in Great Britain and Ireland has been given as 315, whereas, according to the last census, Canada only shows 1·5 persons per square mile. The life insurance in force in Canada per head of population was $12·61 in 1871, $23·88 in 1881, and $54·10 in 1891.

Vital Statistics.

The expense connected with a complete registration of Births and Deaths has hitherto prevented the Dominion Government

[1] For an interesting account of the growth of population, etc., in Canada, *vide* Longstaff, *Studies in Statistics*, chap. vii.

from attempting any such statistics for the whole Dominion, so that beyond the system of registration in the Province of Ontario, and that of the Catholic population of Quebec, the only particulars of births and deaths of any importance are the comparatively uncertain results of the Dominion census. The Province of Quebec has recently passed an Act requiring returns of vital statistics. This Act came into force in July 1893. An attempt was made in 1892 to have the various provinces co-operate with the Dominion Government in the establishment of a complete system of registration, but the effort was unsuccessful. From the great importance of the result of such a registration, it is to be hoped that the end will yet be attained. Even in Ontario, the Registrar is compelled to admit that, as the result of careful examination into the system of registration 'in several directions, the working of the Act in the past has been but partially successful in the attainment of the desired ends.'

In the Dominion census of 1891, great pains were taken to secure returns of births and deaths as accurate as possible. According to these returns the number of deaths per 1000 was 14·10, the proportion of males being 52·4 per cent., and of females 47·6 per cent.

The death-rate per 1000 for each province at the two census years 1881 and 1891 was as follows:—

	1881.	1891.
Ontario,	11·81	11·30
Quebec,	19·07	18·91
Nova Scotia,	14·54	14·57
New Brunswick,	15·02	13·36
Manitoba,	12·34	10·36
British Columbia,	20·35	13·94
Prince Edward Island,	14·27	12·26
The Territories,	...	7·32
Canada,	14·37	14·10

In 1891 the birth-rate for the Dominion was 28·1 per 1000, as compared with 31·8 in 1881.

The well-known relation as to the number of male births to female is sustained also in Canada, where there were 106·5 boys born to 100 girls in 1871; 106·3 to 100 in 1881; and 106·5 to 100 in 1891. The excessive birth-rate and death-rate of the Province of Quebec, especially its Roman Catholic population, is

worthy of remark. Comparing Quebec with Ontario, we get the following figures from the census returns :—

	Birth-Rate.		Death-Rate.	
	1881.	1891.	1881.	1891.
Ontario, . . .	29·01	24·50	11·81	11·30
Quebec, . .	39·03	36·86	19·07	18·91

DEATH-RATE, 1891.

Roman Catholics of Quebec, .	20·1	Roman Catholics of Ontario, .	14·0
Protestants ,, ,, .	10·8	Protestants ,, ,, .	10·8

The excessive birth and death rate of the Roman Catholic population (which largely predominates in Quebec) has been attributed, on the one hand, to the prolific nature of the French *habitant*, and, on the other, to the corresponding backward state of sanitary knowledge and improvements. Were it not for this excessive death-rate among the French-speaking population, Canada would rank as one of the healthiest countries in the world (if not the healthiest), as the following extract from the Dominion census report testifies :—

'The conclusions to be deduced from the examination of these returns are that Canada is the healthiest country of any which have statistics of deaths, excepting two or three of the colonies of the Australian Group; that it is not surpassed in this regard even by the Australian continent as a whole; that the deaths of children under twelve months are fewer in Canada than in other countries, excepting Norway, New Zealand, Scotland, Sweden, and Ireland; that the average death-rate would be lower than it is were it not for the comparatively high death-rate among French-speaking Canadians, and that this higher death-rate requires investigation to ascertain, if possible, the causes, for the purpose of providing a remedy, success in which *would place Canada at the head of all countries as the healthiest.*'

This portion of our paper may be concluded by giving an interesting table compiled by the Dominion census officer :—

Table showing the death-rate per 1000 *at various ages in different countries :—*

Country.	Under 5.	5 to 10.	10 to 25.	25 to 45.	45 to 55.	55 to 65.	65 to 75.
Canada . .	46·73	6·02	2·92	6·88	9·34	15·96	36·68
Victoria . .	36·6	3·5	3·9	10·2	16·2	29·2	21·1
England . .	63·6	6·6	5·5	10·2	17·4	31·8	64·3
United States .	58·8	10·1	5·4	10·8	17·6	27·2	51·4
France . .	75·6	9·2	8·8	12·7	16·6	28·3	66·3
Prussia . .	...	9·2	6·4	11·5	18·6	33·0	64·5
Austria . .	111·7	9·8	6·6	11·3	21·1	41·5	92·8
Switzerland .	...	8·5	6·3	11·6	19·3	38·4	82·5
Italy . .	110·6	11·6	7·8	11·7	17·3	33·1	70·0
Spain . .	106·2	11·7	8·8	12·9	23·8	42·0	95·0
Belgium . .	68·1	12·7	8·1	12·9	19·0	32·3	74·5
Sweden . .	57·6	8·0	4·8	8·2	14·7	27·4	62·6

Origin of Life Assurance in Canada.

With the organisation of the Canada Life Assurance Company on the 21st August 1847, and the issue of its first policy on the 29th October of the same year, the real history of Canadian life assurance may be said to begin. Prior to this date, several British Companies appear to have had agencies in Canada, but the amount of their annual business would not appear to have been large, for in 1847 the annual premium income of these Companies in Canada was only about £15,000. Of the Companies reporting to the Government in 1869, the Scottish Amicable seems to have been the first Company to transact business in Canada, the date of its commencement being given as 1846. The first annual report of the Canada Life Assurance Company states that in 1847 'the practice of life assurance was but little understood among us, notwithstanding the exertions of the colonial agencies of many British Companies, while its governing principles were still less generally understood.' A fact in this same report, regarding the expenses incident to organisation, will no doubt be of interest, especially in view of the experiences of other Companies in more recent years. The total receipts for the first year were £2153, whereas the expenses of the year were only £380, so that, as the report states, the Company was 'placed in a position at its first annual meeting, which is unexampled in the history of British life assurance, that of having realised profits without having included, as is usual, the value of the risks already earned.'

For nearly a quarter of a century the Canada Life was the only native Company doing business in the Dominion. A sentence from its prospectus in 1859 will give some idea of the reception it received during these early years:—'It encountered coldness where it might have expected cordiality, lukewarmness where there should have been zeal, and misgivings where there should have been confidence.' But with the march of years this lukewarmness and lack of confidence gradually gave way to admiration and implicit confidence, so that for many years past the Canada Life has held the foremost place among Canadian Life Assurance Companies.

The year 1847 was also marked by the introduction of the Standard of Edinburgh, which still continues to do a substantial business in the Dominion. In 1850 appeared an American Company, the Ætna Life. Then followed the Liverpool, London and Globe, and the Royal in 1851; the Edinburgh Life and the Life Association of Scotland in 1857; the Scottish Provincial and the Queen Insurance Company in 1859; the London Assurance Corporation, and the North British and Mercantile in 1862; the

Commercial Union and the London and Lancashire in 1863; the Travellers in 1865, and the Phœnix Mutual in 1866. The next year, 1867, was the birthday of the Dominion of Canada, when the existing provinces were confederated into one Dominion, and a constitution was given by the Imperial Parliament in the British North America Act, 1867, to which reference will have to be made later on when discussing the question of Dominion *versus* Provincial jurisdiction in insurance matters.

From 1867 onward a rapid succession of Companies, native and foreign, followed.

The dates of entry, dates of retirement, etc., of the various Companies that have transacted business in Canada are given in Table 'A' in the Appendix. An examination of this table shows that sixteen Canadian Companies have been organised and commenced business in Canada.

Of the twelve existing Dominion Companies, nine have their head offices in Ontario; one in Quebec (Province); one (a young Company) in Manitoba; and one (a Natural-Premium Company) in New Brunswick. So that, with the exception of the Company in Quebec Province, all the principal Canadian Companies have their chief offices in Ontario.

In addition to these, there are two Provincial Companies in Ontario, both young and not included in these remarks.

The following statement shows what has become of these sixteen Companies:—

Total number of Canadian Companies commenced business,					16
„	„	„	existing, .	. 12	
„	„	„	re-insured,	. 4	
„	„	„	failed, .	. 0	
			Total,	—	16

Thus 75 per cent. of the Canadian Companies are still in existence, and no Canadian Life Assurance Company has ever gone into liquidation. Two of the American Companies that transacted business in Canada failed, while one English Company suspended after ceasing for some years to transact any new business in Canada. That no Canadian Companies have ever gone into liquidation, and that so large a percentage are still doing business, is a creditable record for a country in which, from the nature of the case, a high standard of the knowledge of life assurance principles and practice has not always existed.

The first Dominion legislation affecting life assurance was passed in the first Parliament of Canada in 1868, by which,

among other provisions, every Company doing business required a licence, and a Government deposit of at least $50,000.

In 1875 the Dominion Government Insurance Department was established by 38 Victoria, Chapters 20 and 21; and more explicitly in 1877 by 40 Victoria, Chapter 42.

The first Insurance Blue Book was issued by the Department in 1876, which gave the statements of Companies for 1875, and also an abstract and summary of the total business transacted in Canada from 1869 to 1875.

The Dominion Insurance Act at present in force is chiefly a consolidation of the above-mentioned Acts, with some alterations and amendments.

The text of the Act (which is known as the Canadian Insurance Act, 1886) may be found in the Journal of the Institute of Actuaries (xxvii. p. 456).

The Act is also contained in the Dominion Insurance Blue Book for the year ending 31st December 1885.

Growth of Life Assurance in Canada.

The growth of life assurance in Canada can perhaps best be shown in tabular form from an examination of the Insurance Blue Books.

The following Table (No. 1) shows the *number of active Companies licensed and doing business in Canada from* 1869 *to* 1892:—

Year.	Canadian.	British.	American.	Total.
1869	1	14	9	24
1870	1	15	9	25
1871	2	15	9	26
1872	4	15	11	30
1873	4	14	13	31
1874	6	15	13	34
1875	7	14	13	34
1876	7	14	13	34
1877	7	13	12	32
1878	6	11	6	23
1879	7	11	5	23
1880	7	11	5	23
1881	8	11	5	24
1882	9	11	6	26
1883	9	11	7	27
1884	9	11	7	27
1885	10	11	8	24
1886	10	11	8	29
1887	11	10	9	30
1888	11	10	8	29
1889	12	9	10	31
1890	12	9	10	31
1891	11	9	10	30
1892	12	9	10	31

In 1870 the number of licensed Canadian Companies was only 1; of British 15; and of American 9. In 1880 the figures were, Canadian 7; British 11; and American 5; while in 1890 they were, Canadian 12; British 9; and American 10. These last figures remained the same in 1892. The succeeding Tables will show the result of the operations of these three classes of offices. The continuous growth of the Canadian Companies from the lowest to the highest place in the three following Tables is worthy of notice, and reveals a gradual but marked change in public opinion.

In order to exhibit this growth of public confidence in native institutions more fully, reference may be made to the three accompanying graphic illustrations :—

TABLE II.

NEW ASSURANCES EFFECTED IN CANADA FROM 1870 TO 1892 BY BRITISH, CANADIAN, AND AMERICAN COMPANIES.

YEAR.	CANADIAN COMPANIES.	BRITISH COMPANIES.	AMERICAN COMPANIES.
1870	$1,584,456	$1,657,493	$8,952,747
1871	2,623,944	2,212,107	8,486,575
1872	5,276,859	1,896,655	13,896,587
1873	4,608,913	1,704,338	14,740,367
1874	5,259,822	2,143,080	14,705,319
1875	5,077,601	1,689,833	8,306,824
1876	5,465,966	1,683,357	6,740,804
1877	5,724,648	2,142,702	5,667,317
1878	5,508,556	2,789,201	3,871,998
1879	6,112,706	1,877,918	3,363,600
1880	7,547,876	2,302,011	4,057,000
1881	11,158,479	2,536,120	3,923,412
1882	11,855,545	2,833,250	5,423,960
1883	11,883,317	3,278,008	6,411,635
1884	12,926,265	3,167,910	7,323,737
1885	14,881,695	3,950,647	8,332,646
1886	19,289,694	4,054,279	11,827,375
1887	23,505,549	3,067,040	11,435,721
1888	24,876,259	3,985,787	12,364,483
1889	26,438,358*	3,399,313	14,719,266
1890	23,541,404	3,390,972	13,591,080
1891	21,904,302	2,947,246	13,014,739
1892	25,585,534	3,625,213	15,409,266
	$282,637,748	$62,334,480	$216,556,458

* Including 20 months' business of the Canada Life, which changed the date of its fiscal year.

TABLE III.—Premium Income during 1870 to 1892.

Year.	Canadian Companies.	British Companies.	American Companies.
1870	$203,922	$531,250	$729,175
1871	291,897	570,449	990,628
1872	417,628	596,982	1,250,912
1873	511,235	594,108	1,492,315
1874	638,854	629,808	1,575,748
1875	707,256	623,296	1,551,835
1876	768,543	597,155	1,437,612
1877	770,319	577,364	1,299,724
1878	827,098	586,044	1,197,535
1879	919,345	565,875	1,121,537
1880	1,039,341	579,729	1,102,058
1881	1,291,026	613,595	1,190,068
1882	1,562,085	674,362	1,308,158
1883	1,652,543	707,468	1,414,738
1884	1,869,100	744,227	1,518,991
1885	2,092,986	803,980	1,723,012
1886	2,379,238	827,848	1,988,634
1887	2,825,115	890,332	2,285,954
1888	3,166,883	928,667	2,466,298
1889	4,459,595	979,847	2,785,403
1890	3,921,137	1,022,362	3,060,652
1891	4,258,926	1,030,479	3,128,297
1892	4,729,940	1,088,643	3,251,598

TABLE IV.—Amount of Assurances in Force, 1870 to 1892.

Year.	Canadian Companies.	British Companies.	American Companies.
1870	$6,404,438	$17,391,922	$18,898,353
1871	8,711,111	18,405,325	18,709,499
1872	13,070,811	19,258,166	34,905,707
1873	15,777,197	18,862,191	42,861,508
1874	19,634,319	19,863,867	46,218,139
1875	21,957,296	19,455,607	43,596,361
1876	24,649,284	18,873,173	40,728,461
1877	26,870,224	19,349,204	39,468,475
1878	28,656,556	20,078,533	36,016,848
1879	33,246,543	19,410,829	33,616,330
1880	37,838,518	19,789,863	33,643,745
1881	46,041,591	20,983,092	36,266,249
1882	53,855,051	22,329,368	38,857,629
1883	59,213,609	23,511,712	41,471,554
1884	66,519,958	24,317,172	44,616,596
1885	74,591,139	25,930,272	49,440,735
1886	88,181,859	27,225,607	55,908,230
1887	101,796,754	28,163,329	61,734,187
1888	114,034,279	30,003,210	67,724,094
1889	125,125,692	30,488,618	76,348,392
1890	135,218,990	31,613,730	81,599,847
1891	143,368,817	32,407,937	85,698,475
1892	154,709,077	33,692,706	90,708,482

Comparing Tables II. and IV., we see that of the $42,694,713 assurances in force in Canada in 1870, the Canadian Companies held 15 per cent.; the British Companies held 41 per cent.; and the American Companies held 44 per cent. In the same year out of $12,196,696 assurances effected by the three classes of offices, the Canadian Companies secured only 13 per cent., while the British Companies secured 14 per cent., and the American Companies 73 per cent.

Coming now to the year 1892, we find that of the $279,110,265 of business in force in Canada, the Canadian Companies held 55 per cent. thereof, the British Companies 12 per cent., and the American Companies 33 per cent., while of the new assurances effected in 1892, the Canadian Companies wrote 57 per cent., the British Companies 8 per cent., and the American Companies 35 per cent.

These figures are brought together in the following Table:—

	1870.	1892.	1870.	1892.
	Percentage of Total New Assurances Effected.	Percentage of Total New Assurances Effected.	Percentage of Total Assurances in Force.	Percentage of Total Assurances in Force.
Canadian Companies, . .	13	57	15	55
British Companies, . . .	14	8	41	12
American Companies, . .	73	35	44	33
	100	100	100	100

Dominion v. *Provincial Jurisdiction in matters of Insurance.*

A curious anomaly is found to exist in Canada in reference to legal jurisdiction in insurance in all its branches.

That the Dominion Parliament and the Provincial Legislatures should both have powers to create Insurance Companies, and pass laws to regulate the same, must at first sight seem strange, but such powers have been claimed and exercised by each, and as a result much litigation has arisen therefrom.

In the Dominion there exists the Dominion Insurance Depart-

ment, Dominion Insurance Laws, and Companies incorporated by the Dominion Parliament and regulated by Dominion Insurance Laws.

In the Province of Ontario, for example, we have the Ontario Insurance Department, certain Provincial Insurance Laws, and Companies incorporated by the Provincial Legislature, and regulated by Ontario Insurance Laws. Moreover, the Dominion Companies are also subject to such laws as the various Provinces see fit to impose upon them. These anomalies grow out of the interpretation of Sections 91 and 92 of the British North America Act, 1867, in which the legislative powers are distributed in detail between the Dominion Parliament on the one hand, and the Provincial Legislatures on the other. Among the Dominion powers is the 'Regulation of Trade and Commerce;' among the Provincial powers is the right to make laws concerning 'Property and Civil Rights' in the Province. The defendants of Dominion legislation have strenuously endeavoured to include legislation on insurance, and regulation of Insurance Companies under the above heading, 'Regulation of Trade and Commerce;' while the upholders of Provincial authority have just as strenuously, and on the whole more successfully, relied on the Provincial authority to legislate on insurance matters under the heading of 'Property and Civil Rights.'

A short *résumé* of the leading cases will make the subject clearer.

Omitting the two minor cases, Billington *v.* Provincial Insurance Company, and Dear *v.* Western Assurance Company, in which these Companies set up (unsuccessfully) that having obtained their authority from the Dominion, the Ontario legislature could not control or regulate them, the cause which led up to the leading cases of Parsons *v.* Citizens Insurance Company, and Parsons *v.* Queen Insurance Company, was the constitutionality of the Ontario Fire Insurance Policy Act, 1876.

By this Act all the Fire Insurance Companies doing business in Ontario were compelled to print certain uniform statutory conditions on their policies, and 'any variation, omission, or addition was to be printed in conspicuous type, and in ink of a different colour.'

All the leading Companies refused to issue policies in the form and manner prescribed, and judgment having been given against them in certain cases in the Ontario Courts, the above two cases were carried from the Ontario Court of Appeal, first to the Supreme Court of Canada, and then to the Privy Council of Great Britain. A few extracts from the various judgments will serve to throw light on this important question.

In delivering his judgment in the Ontario Court of Appeal, Justice Burton said:—

'The Parliament of the Dominion has no power to authorise a Company of its creation to make contracts in Ontario, except such as the Legislature of that Province may choose to sanction.'

In the Supreme Court of Canada, Justice Taschereau, on the other hand, said:—

'If the Federal Parliament has the power to create Insurance Companies, it has the power to regulate them, that is to say, to prescribe the rules under which they can carry on their trade, by which their trade is to be governed. . . . Either the Federal Parliament has no control at all over Insurance Companies, or it has it supreme, entire, and exclusive. I really fail to understand upon what ground the respondent and the Ontario Courts with him, whilst admitting the power of the Federal Parliament to incorporate Insurance Companies, can sustain the contention that the contract of insurance itself falls within provincial control simply because it is a *contract*, or a personal *contract*, and falling within the words "Civil Rights of the 92nd Sec. of the British North America Act."' However, three of the Judges of the Supreme Court upheld the decisions of the Ontario Courts, that the Ontario Act was *intra vires*, while two of the judges held that the Act was *ultra vires*, so that the decision of the Supreme Court was again against the Company.

The case of Parsons *v.* Queen Insurance Company was a companion case, and although the latter Company was incorporated by the Imperial Parliament, the decision of the one virtually governed the two cases.

Having been defeated in both the Ontario Courts and the Supreme Court of Canada, the Companies next appealed to the Imperial Privy Council, who, in concluding their important decision, said that 'on the best considerations that they had been able to give to the arguments addressed to them, and to the judgments of the learned judges in Canada, their Lordships have come to the conclusion that the Act in question is valid.'

In their judgment, however, their Lordships left undetermined the highly important question whether insurance legislation falls exclusively within the 'Regulation of Trade and Commerce' clause of the Dominion Parliament, or within the 'Property and Civil Rights' clause of the Provinces. They state:—

'Their Lordships abstain on the present occasion from any attempt to define the limits of the authority of the Dominion Parliament in this direction (regulation of trade and commerce). It is enough for the decision of the present case to say, that in their view, its authority to legislate for the regulation of trade and

commerce does not comprehend the power to regulate by legislation the contracts of a particular business or trade, such as the business of fire insurance, in a single Province, and therefore that its legislative authority does not in the present case conflict or compete with the power over property and civil rights assigned to the Legislature of Ontario by No. 13 of Sec. 92.'

Thus the legal jurisdiction in insurance was left, and still remains, an unsettled question, as between the Dominion and the Provinces.

After the rendering of the above decision by the Privy Council in 1881, the Dominion Superintendent of Insurance, Professor Cherriman, M.A., F.I.A., suggested a compromise whereby the Dominion should not interfere with Provincial Companies while confining their business within the limits of their own Province, and the Provinces should not interfere with Companies licensed by the Dominion.

Notwithstanding the doubts thus thrown upon the jurisdiction of the Dominion in its attempt to regulate Insurance Companies and insurance contracts, this compromise seems to have met with the approval of the Companies, for it is obvious it is more satisfactory to deal directly with one well-regulated federal insurance department, than to be subject to the minute and ever-changing regulations of seven or eight Provincial departments.

In the year 1886 the Dominion Parliament passed the *Insurance Act*, which enacts certain clauses pertaining to the regulation of contracts that seem to conflict with the judgment of the Privy Council previously referred to. For example, it is enacted by Sections 27 and 28 that no condition impairing the effect of a policy shall be valid unless set out in the policy, and that no voidable condition shall be printed on a policy unless the same is material to the contract. Again, by Section 39 of the same Act, provisions are enacted for the regulation of Mutual Assessment Companies and their contracts. Again, by Section 22, penalties are imposed upon any person who transacts any insurance business for an unlicensed Company. It has been claimed that such legislation is *ultra vires* of the Dominion, and in view of the previous judgments, clearly *intra vires* of the Provincial Legislatures. Such legislation is, however, in the public interest, and hence its validity has not been tested.

Thus, upon the whole, Life Insurance Companies prefer to place themselves under the jurisdiction of Dominion insurance laws, and only give in their allegiance to the regulations of the Provinces when it is obviously useless to oppose them. With the exception of portions of the above-mentioned Dominion Insurance Act of 1886, the compromise previously referred to has been apparently fairly well carried out.

A number of local Fire Insurance Companies, and one or two Life Companies, have been under the sole superintendence of the Ontario Insurance Department; while Companies having Dominion licence have been largely under the jurisdiction of the Dominion Insurance Department, but amenable to any existing Provincial laws.

Of the Provincial enactments on insurance, those of Ontario are the most numerous and important, this being the only Province with an insurance department and an inspector or superintendent of insurance.

The above-mentioned compromise was, however, considerably invaded by the passing of the Ontario Corporations Act in 1892 (and amendments thereto in 1893), to which reference will have to be made later on. For instance, every Company having a Dominion licence is required to be registered in the office of the Ontario Inspector of Insurance, and in addition is required to pay certain fees, the chief of which is the yearly tax of $100, while every insurance agent in Ontario, whether representing a Provincial or Dominion Company, is compelled to be licensed and pay a yearly fee of $2·00 to the Provincial Government.

The Insurance Corporations' Act just mentioned is a comprehensive and important piece of legislation, in which the jurisdiction of the Provincial legislature is strongly asserted. Three of the other Provinces had previously passed laws respecting taxes on Life Insurance Companies or agents. The Province of Quebec imposes on Life Insurance Companies a tax of $500 per annum, with an additional tax of $100 per annum for each office in Montreal or Quebec city, and $500 for each office or place of business established in any other place. In the Province of New Brunswick, special or travelling life insurance agents are compelled to pay an annual tax or licence fee of $100, but this does not apply to agents who for twelve months have resided in the Province and have had during such time a fixed place of business. In the city of Charlottetown, Province of Prince Edward Island, every Life Insurance Company is assessed in respect to the real estate or moveable property owned by said Company, in the same way as the other ratepayers, and has in addition to pay a licence fee of $50.00.

State Supervision.

The question of State supervision has given rise to a great deal of discussion on both sides of the Atlantic. While liberty and publicity are the features of the British system, strict legal supervision and publicity characterise the Canadian system.

The reading of Mr. King's paper at the Institute of Actuaries

(J.I.A. 29) brought out forcibly the opposition to any system of strict legal supervision for Great Britain, similar to the American system. It may be quite probable that the opinion of State supervision, created in the British mind, is derived largely from the American system, and it is therefore important to point out that in some important respects the Canadian law is radically different from the American.

Canadian supervision of Companies doing business throughout Canada is Federal, not local or provincial (although the Province of Ontario does supervise Companies doing business in Ontario only). The result is, in place of having to deal with seven or eight local departments, Companies deal directly with one Federal Insurance Department at Ottawa.

The benefits of this are :—

(*a*) Uniform laws and regulations.
(*b*) Freedom from continuous changes of local departments.
(*c*) The publication of the official statements of Companies on similar standards at the same time.
(*d*) Saving in expense.
(*e*) The education of public opinion according to one well-recognised standard, thus avoiding a conflict of opinion and a conflict of Government standards.

The second point of distinction is that the appointment of Superintendent of Insurance is not a political appointment depending on every change of government, as in the United States. This is a most important improvement on the American system, and one which renders difficult the passing of crude insurance laws and regulations, and especially the manipulation of the insurance department for personal or political ends. Since the establishment of the Canadian Insurance Department in 1875, there have been only two Superintendents of Insurance, the first, Prof. Cherriman (a Cambridge wrangler), who left the chair of mathematics in Toronto University to accept the position; the second, Mr. Fitzgerald, who is a University man and a barrister. The separation of the office of Superintendent from the arena of party politics is a wise and necessary precaution to successful State supervision. It is not too much to say that the Canadian system of State supervision has, on the whole, been a success. While the doctrine of *laisser faire* may work satisfactorily in an old country like Great Britain, with an educated public opinion, in a young country like Canada, where immature schemes and irresponsible corporations are liable to spring into being at any time, it is almost a necessity to have some means beyond mere publicity by which to regulate their development and exhibit their true standing.

At the present time it is impossible for any insurance corpora-

tion to obtain corporate powers under Dominion law, except by special application to Parliament, where the proposed charter has to run the gauntlet of the banking and finance committee. There is no means whereby an Insurance Company can incorporate under a Dominion Act by Letters Patent, as is possible under the Ontario law. The effect of this, together with the stipulation that $50,000 deposit is required with the Government before commencing a regular life insurance business, puts a pretty effectual check on the hasty organisation of Dominion Life Insurance Companies.

The one point where the Canadian system has pressed severely, if not unjustly, is in requiring a strict net premium valuation according to the H^M 4½ per cent. Table from all Companies, whether old or young. In three or four cases, within recent years, young Companies commencing business in the face of severe competition have been placed at a serious disadvantage in public estimation by having to wear on their banners for several years the stigma of 'capital impaired,' the result being that their natural growth has been unwisely checked by having to comply with a severe valuation regulation at a period in their history when it was least applicable or necessary. This regulation, together with the required deposit of $50,000, renders it practically impossible for any Dominion mutual life assurance company to come into existence in the future.

The above considerations account for the fact that there is only one purely mutual Canadian life assurance company doing business in Canada. This Company began in 1870 as an Ontario Company, and continued so until, after possessing the requirements of the Dominion Act, it extended its business beyond Ontario under Dominion supervision.

With regard to Government inspection, the Superintendent of Insurance makes at least a yearly visit to the head offices of Canadian Companies, either in person or by deputy, where a rigid verification of the sworn statements of the Companies is made, including a personal inspection of the assets.

When occasion arises, the Superintendent is empowered also to visit the head offices of companies incorporated elsewhere than in Canada and examine into their condition. Within recent years an inspection was made by the Canadian Superintendent of Insurance at the head offices of several American Companies that do business in Canada.

With regard to valuation of policies, the Canadian policies of all Companies doing business in Canada are valued every fifth year by the Dominion Insurance Department, according to the H^M table of mortality and interest at 4½ per cent. In the intervening years,

the Companies either make the valuations themselves, or may request the Insurance Department to do so at a fixed charge. These valuations are not made on the usual British method of classifying the systems of assurances, and valuing the total sums assured and total premiums, but the value to the nearest month of each policy is usually made separately. For this purpose the Dominion Insurance Department has prepared books of valuation of all ordinary forms of assurance policies usually written (Life, Endowment Assurance or Term), according to the H^M $4\frac{1}{2}$ per cent. table, and each Canadian Life Company is furnished with a copy for its own use. These tables, which occupy about 650 pages, are most complete and valuable, and reflect credit on the actuarial branch of the Canadian Insurance Department.

In concluding this topic, it may be said that since its establishment the Canadian system of State supervision has had a salutary effect on the business of life assurance, that the officers of the Insurance Department have shown tact and judgment in administering the law, and that many evils charged against the American State supervision have not found their counterparts in the Canadian system.

Cost of Business.

The expense of conducting a progressive business in America has been a much-discussed question in recent years. The results of the 'high pressure' methods introduced by American Companies have had their effect on Canadian Companies competing on their own ground with the large American Companies. The effect of 'lightning insurance solicitors' and 'executive special agents' from the United States, making flying visits to different points in Canada, and in many cases seducing local agents of Canadian Companies from their allegiance, and offering tempting rebates to assurers, has had a most demoralising effect on public opinion. Not only so, but native Companies have been compelled to raise their agency commissions to points which they should not otherwise have reached. Two or three of the older Canadian Companies have stoutly opposed this despoliation of policyholders' interests, and have managed to keep their expense ratios within reasonable bounds. Taking all the Canadian Companies together, the reduction in the percentage of expenses to income has not been as rapid as the increasing age of the Companies would have led us to expect. It must be remembered, however, that a majority of these Companies are comparatively young, and a low ratio of expense to income could not be expected in consequence of the new business bearing such a large ratio to the

renewal business. Unfortunately, the Government returns do not separate the new from the renewal premiums, so that it is not easy to get at the actual cost of the new business.

The following Table shows that, during the fourteen years, 1879-1892, the percentage of expenses to premium income has been 25 per cent., and of expenses to total income, about 20 per cent.

EXPENDITURE OF CANADIAN COMPANIES.

Year.	Percentage of General Expenses to Premium Income.	Percentage of General Expenses to Total Income.
1879	26·96	20·66
1880	26·23	19·97
1881	27·19	20·88
1882	25·37	20·33
1883	26·41	20·72
1884	26·31	20·91
1885	24·44	19·23
1886	26·58	20·91
1887	25·21	19·48
1888	26·82	21·66
1889	23·87	18·27
1890	23·76	19·27
1891	24·24	19·48
1892	24·17	19·58
Average	25·07	19·98

From Bourne's *Handy Assurance Guide* (1892), we obtain the percentage of expenses to life-premium income for seventy-eight British Companies, and also for four American Companies.

For the year 1891 we have the following comparison :—

	Percentage of Expenses to Premium Income.
78 British Companies, . .	14·01
4 American Companies, . .	25·22
12 Canadian Companies, . .	24·24

To use these figures without considering the ages and circumstances of the Companies is of course open to objection. Most of the British Companies being of many years' standing, a fairer comparison would no doubt be obtained by taking the oldest

ian Company, whose age, moreover, corresponds more nearly hat of the American Companies. For the year 1891, the ponding percentage of the oldest Canadian Company (which d the largest amount of new business among native Com- was 17·68, a percentage which compares favourably with British Companies writing a corresponding amount of new ss, and which is much lower than the percentage of the four ian Companies. While the commission contracts of local for one or two of the oldest Canadian Companies range 5 to 40 per cent. on new premiums, with 5 to 7½ per cent. ewals, taking one Company with another, it may be stated he Commission Contracts of Canadian Companies will about 45 per cent. on new premiums, and 5 to 7½ per n renewals. The commission paid by American Companies w business in Canada considerably exceeds that of the Canadian Company. In quoting these figures it should be tood that these commissions on new business practically the agents' remuneration, the British practice of salaried managers not being in vogue here. Moreover, the ms of Canadian Companies being considerably lower than f British Companies, the *actual outgo* for commissions is ondingly less, when based on the same rate of commission.

Investment of Life Assurance Funds.

ry fair idea of the direction in which Life Assurance Funds ested can be obtained from the following classification of the f Canadian Companies at the four quinquennial periods, 1882, 1887, 1892. The large increase in the last quin- im in the real estate owned is accounted for by the three iew buildings erected by three of the largest Canadian nies. From 1887 until 1892, a general and commendable off has taken place in the item of agents' balances and eivable. The loans and obligations on policies in force in mount to over 9 per cent. of the invested assets. A practice among several Canadian Life Assurance Companies, ly the younger Companies, of taking the note of the for one to six months, to cover the first premium. This especially to business secured from farmers. The policy is t in full force during the currency of the note, and lapses note be not paid at maturity. Although facilitating the of business promptly, the effect of this practice on the injurious. These short-date notes are included under the 'outstanding premiums.'

CLASSIFICATION OF ASSETS OF CANADIAN COMPANIES.

	1877.	1882.	1887.	1892.
Real Estate, . .	$184,723	$381,194	$552,885	$2,058,368
Loans on Real Estate,	914,450	2,194,373	5,569,694	11,226,804
Loans on Collaterals,	38,498	271,575	1,260,270	2,240,115
Cash Loans and Premium obligations on Policies in force,	381,551	665,893	1,149,900	2,268,681
Stocks, Bonds, and Debentures, . .	2,045,470	3,438,521	4,250,877	6,248,246
Cash on hand and in banks, . . .	61,371	204,619	319,515	266,113
Agents balances and Bills Receivable, .	16,368	62,022	120,923	23,360
Interest and Rents due and accrued, .	47,678	153,335	302,685	528,968
Outstanding and deferred Premiums, .	270,002	365,854	739,887	991,031
Other Assets, . .	42,564	49,814	83,740	76,601
Totals, . .	$3,999,675	$7,787,200	$14,350,376	$25,928,287

It may be worth while pointing out in a few words the relative position occupied by investments generally in Canada as compared with those in other parts of the world.

The past two years have witnessed a remarkable series of financial crises in different countries, seriously affecting many investments hitherto regarded as safe. Amid this financial upheaval, investments generally in Canada have maintained a solidity that proves their soundness and reliability. It has been a matter of some surprise that, amid the prevailing depression, the banking and other financial corporations of Canada should have been able to maintain their credit. This is partly accounted for by the sound system of banking in Canada, which has few superiors in any country in this respect, and partly by the slow but patient and industrious nature of Canadian life. Canadian investors are not easily carried away to an Eldorado of high interest rates combined with doubtful security, and in this respect Canada will make a most favourable comparison with Australia and the United States. The investments of Life Assurance Companies in Canada are therefore of a high character, so that the risk of loss from a financial crisis is reduced to a minimum.

Rate of Interest.

Within recent years the important question of the rate of interest earned on Life Assurance Funds has given rise to a good deal of anxiety and discussion in America as well as in Great Britain. In the early history of the oldest Canadian Life Company, valuations were made at '6 per cent. as a safe rate of interest.' In 1870 this was reduced to 5 per cent., and in 1880 to 4½ per cent. As previously indicated the legal standard for valuation of policies in Canada is 4½ per cent. Until recently the average interest earnings of the Canadian Companies have been such that a safe margin has existed between the standard rate and the rate earned. But the steady decline in the rate to be obtained on the best securities has caused the leading Companies to carefully consider whether or not the time was near at hand when a change to a 4 per cent. basis would be not only prudent but necessary. Omitting mention of a recently organised Company (which commences by holding a 4 per cent. reserve) no Canadian Company has yet changed to a 4 per cent. basis. Foreseeing the downward tendency of interest rates, the oldest Canadian Company at its last quinquennial valuation (31st December 1889) put aside $250,000 (over and above the American Experience 4½ per cent. reserves) as a special fund towards the creation of a 4 per cent. reserve. This has been the first step towards a new standard, but from the annual reports of other Companies, and the opinions of their officers, it is evident the matter is having serious attention, but it will probably be some years yet before a change to a 4 per cent. basis will be enacted by the Government.

The interest earnings of Canadian Companies are given in the following Table, extracted from the *Insurance and Finance Chronicle*, of Montreal.

The rates are obtained from the formula $\frac{2I}{A+B}$, I being the true interest revenue for the year, and A and B the funds at beginning and end of year. As is known, this function gives the *force of interest*. The expression $\frac{2I}{A+B-I}$, which gives the true rate of interest approximately, would bring out slightly higher values, but the following Table, based on the first expression, will no doubt show with sufficient accuracy the ruling rate of interest, and also the steady decline from year to year:—

INTEREST EARNINGS OF CANADIAN COMPANIES.

Year.	Rate of Interest earned.	Rate of Interest earned, including Profits on Sale of Securities.
1880	6·71	6·75
1881	6·70	6·77
1882	6·19	6·20
1883	6·23	6·61
1884	6·09	6·13
1885	6·08	6·22
1886	6·07	6·29
1887	5·77	6·57
1888	5·77	5·83
1889	5·61	5·74
1890	5·50	5·58
1891	5·54	5·59

Mortality.

As previously indicated, the Table of Mortality adopted as the standard in Canada is the H^M Table of the Institute of Actuaries. Unfortunately, no Canadian Company has yet taken out its mortality experience, although it is hoped and expected that some of the older Companies will undertake this important work. Thus it is not possible to give any accurate comparison of the mortality in Canadian Companies, either among themselves or with foreign Companies. From the perusal of the various annual reports of the Companies from year to year, we find the oft-repeated phrase that the mortality experience was well within the expected mortality. To what extent these statements are based on actual calculation is not known outside the offices making them. In order to give some idea of the death-rate per 1000 among insured lives in Canada, the following Table has been compiled from the Companies' returns and printed in the report of the Superintendent of Insurance:—

DEATH-RATE PER 1000 LIVES.

Year.	Active Companies.	Assessment Companies.	Retired Companies.	All Companies.
1885	9·646	6·207	16·041	10·011
1886	8·132	7·997	15·817	8·656
1887	8·317	9·120	17·943	8·955
1888	8·614	9·727	23·489	9·495
1889	8·846	8·250	16·840	9·083
1890	10·148	8·475	24·417	10·340
1891	10·178	9·345	20·109	10·335
1892	10·676	8·946	26·512	10·860

It will be noticed that the mortality of the active Companies, among which Canadian Companies largely predominate, is quite low, being on the average less than 10 per 1000. Of course this is largely accounted for by the fact that the lives are comparatively recently selected and drawn largely from among young persons. But there can be little doubt that the insured lives in Canada would make a favourable comparison in point of quality of risk with those of any other country.

With a better knowledge of the climate and risk of travel, the 'extra premium' for foreign residence, as applied to Canada by British Companies, is now a matter of history only.

Foreign Business of Canadian Companies.

Three or four Canadian Companies are doing business elsewhere than in Canada. The only Canadian Company doing business in any of the United States is the Canada Life Assurance Company, and it is besides the only foreign life company that is at present operating in the United States.[1] Its business is confined to the three states of Michigan, Minnesota, and Ohio, although it will no doubt enter other states in the future. Two other Canadian Companies are doing business in South America and the West Indies, and one of these, the Sun Life Assurance Company, has also made a new departure by commencing operations recently in England. The amount of the foreign business of the Canadian Companies in force at 31st December 1892, was $7,000,000, on which the premium income was $277,000.

Friendly Societies.

To even trace in outline the rise and progress of Friendly Societies in Canada would require more space than can here be allotted to it, and hence only very brief notes will be made. For some years the Friendly Societies in Canada have been undergoing a gradual evolution from mere Benefit Societies, whose payments were founded on donations to Friendly Societies with benefits founded on *contract* between society and member. To discover or evolve order out of this chaos has been no easy task. As yet Friendly Societies in Canada cannot be said to be more than Assessment Societies whose life assurance schemes are founded on what the President of the Institute of Actuaries in 1890 (Mr. William Sutton) called 'a fallacious principle which had long ago

[1] Since the above was written, the Nederland Life Insurance Company of Holland has been admitted to do business in the State of New York.

been exploded in this country (England).' These Friendly or Assessment Societies are of two classes—

(1) Those founded in connection with fraternal order.

(2) Those having no fraternal feature.

The former are not under Dominion Government supervision; the latter are to a limited extent, if doing business in more than one Province. Both these classes differ from a regular mutual Assurance Company or Society, in that the latter must be actuarially solvent, whereas a Friendly Society in Canada need only possess sufficient available assets to meet present liabilities.

Of the four non-fraternal societies coming under class 2 above, two found it expedient in 1892 to anticipate their natural fate by re-assuring in a similar but stronger American Assessment Society. The Dominion Insurance Department supervises the business of societies under class 2 (native or foreign) which do business in more than one Province, but it assumes no responsibility for, nor vouches for, their actuarial solvency; and such societies have by law to bear about in their literature and advertisements the opprobrious title '*Assessment System.*' Although called 'Assessment Societies,' nearly all of these societies of both classes have regular periods of assessment, and comparatively regular levies or rates. In many instances these rates approach to those of short-term rates of a regular Company, but a great deal of controversy and misunderstanding prevails among the members of these societies and others as to the possibility and necessity of these assessment rates ever increasing. On this subject an educational process has been and is still going on.

The first attempt to deal with Friendly Societies in Canada in a comprehensive way is found in the Ontario Insurance Corporations Act, 1892, although various laws respecting benefit societies have been passed since 1850. But the above Act is the only case where an attempt has been made to regulate these societies, fraternal or non-fraternal. Of course this law does not affect societies operating entirely outside of Ontario. The general effect of the above Act, as regards Friendly Societies, has been to change them, so far as possible, from societies whose payments rested on donation, to societies with payments founded on contract.

All Friendly Societies undertaking insurance contracts in Ontario must now be registered on the 'Friendly Society Register' of Ontario. Various clauses are enacted for the regulation and conduct of these societies, *e.g.*—

(1) The registration and classification of their contracts and accounts in a form approved by the Registry Officer.

(2) An annual '*bona fide* and business-like audit of its books of record and account,' showing the actual assets, liabilities,

receipts and expenditures, and the statement of the insurance fund or funds, and a copy of such summary statement shall be filed in the office of the Registrar,' as well as furnished to the members or lodges.

(3) The investment of the surplus funds in specified securities.
(4) An official audit in certain cases by the Registrar.
(5) Penalties for falsifying accounts or obstructing an official audit.
(6) The suspension or cancellation of the Registration of a fraudulently conducted or insolvent society.
(7) Regulations as to foreign Friendly Societies.
(8) The exclusion of foreign Assessment Endowment Societies, and the prohibition of the future incorporation of native Assessment Endowment Societies.

The certificate of registry issued to a Friendly Society, or the reporting to the Insurance Department, does not imply any approval of the financial standing or basis of a society, as they are not permitted to make any deposit with the Ontario Insurance Department, which assumes no responsibility for their actuarial solvency. It may be stated that the Wives' and Children's Act, hereafter described, now applies in Ontario to Friendly Societies. The foregoing regulations only apply to Friendly Societies operating within Ontario. Societies whose operations are confined to any other Province are not subject to these regulations.

Insurable Interest (*Ontario*).

The laws of Ontario are founded on the common law of England; certain Imperial Statutes (prior to 1792); and Provincial Enactments. Among the Imperial Statutes is the well-known Gambling Act of 1774 (14 Geo. III. cap. 48), which has been law in Ontario and remains so, except as modified by the Insurance Corporations Act (1892).

Section 35 (2) of the latter Act, reads thus:—'In order to render valid any contract of life assurance, the beneficiary under the contract, being other than the assured or the parent or *bona fide* assignee or nominee of the assured, or a person entitled under the Will of the assured or by operation of law, must have had at the date of the contract a pecuniary interest in the duration of the life, or other subject insured.'

Section 35 (1) removes the incapacity of a minor between ages 15 and 21 to make a contract of life insurance (either for his own benefit or for that of his father, mother, brother, or sister), and he may now not only make such a contract but he may also give a valid discharge for a surrendered policy or other benefit thereunder.

Prior to the Insurance Corporations Act, 1892, a parent did not have an insurable interest in the life of his child, when a pecuniary interest did not exist.

Notwithstanding this, a large number of Industrial Policies on children had been issued in apparent ignorance of the law. Instead of exempting policies on children from the operation of the Gambling Act, 1774, as was done in the case of the Friendly Societies Act in England, the force of the above-mentioned Act was modified in the Corporations Act by legalising such policies for the future within certain limits as to amount and age. But existing insurances were not interfered with. Thus from ages 2 to 10, the amount of insurance that may be effected on children (where a pecuniary interest does not exist) is limited and gradually graded from $25 to $147. After 10 years of age, the restriction as to amount of insurance ceases. According to decisions of the United States Courts, it has been held that a parent has an insurable interest in the life of his minor child, especially where relationship is accompanied with presumptive or conclusive evidence of pecuniary interest, benefit or advantage from the continuance of the life assured. Accepting this wider view of insurable interest, the Insurance Corporations Act provides, Section 35 (6):—

'In respect of insurance heretofore or hereafter effected on the lives of persons under 21 years of age, where such insurance has been effected by a parent upon the life of his child, such insurance shall not be deemed to be invalid by reason only of the parent's want of pecuniary interest in the life of the child.'

Wives and Children Acts.

The Dominion Parliament has never passed any Act similar to the Married Woman's Property Act of England, or that of Scotland, so that for legislation on this important subject we have to look to the various provincial enactments. By far the most important of these is that in force in Ontario. It is most important as being the first passed, the most frequently amended, and the one to which most frequent reference is made and decisions given. After noting the most salient features of this Act, a few brief notes on similar Acts in other Provinces will be made.

ONTARIO.—In 1865 was passed the first law not only in Ontario but also in Canada relating to life insurance for the benefit of wives and children. This legislation was promoted by the Canada Life Assurance Company and has been the subject of such frequent extensions and amendments that it may now be supposed to have arrived at that position which some of its admirers claim for it, viz., the most

comprehensive and best working 'Wives and Children Act' passed by any legislature. This Act has been before the Ontario Legislature about fifteen times, and it will be found that many of the points which have given rise to doubt and trouble in the corresponding English and Scotch Acts are now definitely settled in the Ontario Act. The general object of the Act is for the protection of sums assured in favour of a wife or children, free from all claims of creditors.

The following are the principal sections of the Ontario 'Wives and Children Act:'—

5. In case a policy of insurance effected by a man on his life is expressed upon the face of it to be for the benefit of his wife, or of his wife and children, or of any of them, or in case he has heretofore indorsed, or may hereafter indorse, or by any writing identifying the policy by its number or otherwise has made, or may hereafter make a declaration that the policy is for the benefit of his wife, or of his wife and children, or any of them, such policy shall inure and be deemed a trust for the benefit of his wife, for her separate use, and of his children, or any of them, according to the intent so expressed or declared, and so long as any object of the trust remains the money payable under the policy shall not be subject to the control of the husband or his creditors, or form part of his estate when the sum secured by the policy becomes payable, but this shall not be held to interfere with any pledge of the policy to any person prior to such declaration.

5 (*a*). In the case of a policy or written contract of life insurance effected before marriage, a declaration under this section shall be, and shall be deemed to have been, as valid and effectual as if such policy or contract had been effected after marriage, but nothing herein contained shall affect any action or proceeding now pending.

6 (*a*). The husband may, by an instrument in writing, attached to or indorsed on, or identifying the policy by its number or otherwise, vary a policy or a declaration or an apportionment previously made so as to restrict or extend, transfer or limit the benefits of the policy to the wife alone, or the children, or to one or more of them, or to the mother of the assured as a beneficiary or sole beneficiary, although the policy is expressed or declared to be for the benefit of the wife and children, or of the wife alone, or for the child or children alone, or for the benefit of the wife for life and of the children after her death, or for the benefit of the wife, and, in case of her death during the life of the insured, then for the child or children, or any of them, or although a prior declaration was so restricted; and he may also apportion the insurance money among the persons intended to be benefited, and may, from time to time, by an instrument in writing attached to or indorsed on the policy or referring to the same, alter the apportionment as he deems proper; he may also, by his will, make or alter the apportionment of the insurance money, and an apportionment made by his will shall prevail over any other made before the date of the will, except so far as such other apportionment has been acted on before notice of the apportionment by the will or for one or more of the above-mentioned persons for life and after his or their decease, for the benefit of any one or more of the survivors.

7. Where no apportionment is made, all persons entitled to be benefited by the insurance shall be held to share equally in the same; and where it is stated in the policy or declaration that the insurance is for the benefit of the wife and children generally, or of the children generally, without specifying the names of the children, the word 'children' shall be held to mean all the

children of the insured living at the maturity of the policy, whether by his then or any former wife, and the wife to benefit by the policy shall be the wife living at the maturity thereof; provided always that any such policy may be surrendered or assigned;

(*a.*) Where the policy is for the benefit of the children only, and the children surviving are all of the full age of twenty-one years, if the persons insured and all such surviving children agree to so surrender or assign; or

(*b.*) Where the policy is for the benefit of both a wife and children, and the surviving children are all of the full age of twenty-one years, if the person insured and his then wife (if any) and all such surviving children agree to so surrender or assign; or

(*c.*) Where the policy is for the benefit of a wife only, or of a wife and children, and there are no children living, if the person insured and his then wife agree to so surrender or assign.

8. Where an apportionment has been made, if one or more of the persons in whose favour the apportionment has been made die in the lifetime of the insured, the insured may, by any instrument in writing attached to or indorsed on or otherwise referring to and identifying the policy of insurance, declare that the share formerly apportioned to the person so dying shall be for the benefit of such other person or persons as he may name in that behalf, not being other than the wife and children of the insured, or one or more of them, and in default of any such declaration, the share of the person so dying shall be the property of the insured, and may be dealt with and disposed of by him as he may see fit, and shall at his death form part of his estate.

9. Where no apportionment has been made, if one or more of the persons entitled to the benefit of the insurance die in the lifetime of the insured, and no apportionment is subsequently made by the insured, the insurance shall be for the benefit of the survivor or of the survivors of such persons in equal shares if more than one; and if all the persons so entitled die in the lifetime of the insured, the policy and the insurance money shall form part of the estate of the insured; or after the death of all the persons entitled to such benefit, the insured may, by an instrument executed as aforesaid, make a declaration that the policy shall be for the benefit of his then or any future wife or children, or some or one of them.

10. (1) When the insurance money becomes due and payable it shall be paid according to the terms of the policy, or of any declaration or instrument as aforesaid, as the case may be, free from the claims of any creditors of the insured, except as herein provided.

11. The insured may, by the policy or by his will, or by any writing under his hand, appoint a trustee or trustees of the money payable under the policy, and may from time to time revoke such appointment in like manner and appoint a new trustee or new trustees, and make provision for the appointment of a new trustee or new trustees, and for the investment of the moneys payable under the policy. Payment made to such trustee or trustees shall discharge the Company.

12. If no trustee is named in the policy, or appointed as mentioned in section 11, to receive the shares to which infants are entitled, their shares may be paid to the executors of the last will and testament of the insured, or to a guardian of the infants duly appointed by one of the Surrogate Courts of this Province, or by the High Court of Justice, or to a trustee appointed by the last-named Court upon the application of the wife or of the infants or their guardian, and such payment shall be a good discharge to the Insurance Company.

16. If a person who has heretofore effected, or who hereafter effects an insurance for the purposes contemplated by this Act, whether the purpose appears by the terms of the policy or by indorsement thereon, or by an instrument referring to and identifying the policy, finds himself unable to continue to meet the premiums, he may surrender the policy to the Company, and accept in lieu thereof a paid-up policy for such sum as the premiums paid would represent, payable at death, or at the Endowment age, or otherwise (as the case may be), in the same manner as the money insured by the original policy, if not surrendered, would have been payable, and the Company may accept the surrender and grant the paid-up policy, notwithstanding any declaration or direction in favour of the wife and children, or any or either of them.

17. The person insured may from time to time borrow from the Company insuring or from any other Company or person, on the security of the policy, such sums as may be necessary, and shall be applied to keep the policy in force, and on such terms and conditions as may be agreed on, and the sum so borrowed, together with such lawful interest thereon as may be agreed on, shall, so long as the policy remains in force, be a first lien on the policy and on all moneys payable thereunder, notwithstanding any declaration or direction in favour of the wife and children, or any or either of them.

20. No declaration or apportionment affecting the insurance money or any portion thereof, nor any appointment or revocation of a trustee, made after the passing of this Act, shall be of any force or effect as respects the Company, until the instrument or a duplicate or copy thereof is deposited with the Company.

Where a declaration or indorsation has been heretofore made, and notice has not been given, the Company may, until they receive notice thereof, deal with the insured or his executors, administrators or assigns, in respect of the policy, in the same manner and with the like effect as if the declaration or indorsation had not been made.

21. If the policy was effected and premiums paid by the insured with intent to defraud his creditors, the creditors shall be entitled to receive, out of the sum secured, an amount equal to the premiums so paid.

23. Where all the persons entitled to be benefited, whether by original insurance, by written declaration, or by instrument of apportionment under any policy are of full age, they and the person insured may surrender the policy or assign the same, either absolutely or by way of security.

The following important provisions as to Insurance are contained in the 'Act respecting Contracts of Life Insurance,' 53 Vict. c. 39 (Ont.):—

1. Where a contract of life insurance is effected by an unmarried man, for the benefit of his future wife, or future wife and children, but the contract does not designate by name or otherwise clearly ascertain a specific person as such intended wife, the contract (not being within the intent of sub-sections 2 and 3 hereof) shall be construed as provided in section 7 of the Principal Act.

2. When a contract of life insurance is effected as in sub-section 1, but at the maturity of the contract the insured is still unmarried, or is a widower without issue, the insurance money shall fall into and become part of the estate of the insured.

3. When a contract of life insurance is effected by an unmarried man for the benefit of his future wife, or future wife and children, and the intended wife is designated by name, or is otherwise clearly ascertained in the contract of life insurance, but the intended marriage does not take place, all questions arising on such contract shall be determined as if this Act had not been passed.

4. (1) A policy or written contract of life insurance effected by any woman on her own life, and expressed to be for the benefit of her husband and children, or any of them, shall be deemed a trust in favour of the objects therein named, and the moneys payable under such policy shall not, so long as any object of the trust remains unperformed, form part of the estate of the deceased, or be subject to her debts.

(2) Whatever under the Principal Act a man may lawfully do in respect of insurance effected upon his life, may also, under the like circumstances, be done by a woman in respect of insurance effected upon her life; and the like rules of construction shall prevail.

5. Any person, either by the original contract of life insurance or by indorsement thereon or otherwise, as provided in section 6 of the Principal Act, may make his or her mother a beneficiary or the sole beneficiary under the contract, and such contract shall create a trust in favour of the mother accordingly, and the moneys payable to the mother under any such contract shall not, so long as the trust remains unperformed, form part of the estate of the insured or be subject to his or her debts.

['The Principal Act' is 'the Act to secure to wives and children the benefits of life insurance.' R.S.O. 136.]

PROVINCE OF QUEBEC.—It is lawful for any husband to insure his life or to appropriate any policy of insurance held by himself on his life for the benefit of his wife, or for the benefit of his wife and their children generally, or for the benefit of his wife and his, her, and their children generally, or for the benefit of his wife and one or more of his, her, or their children; and for any father or mother to insure his or her life and to appropriate any policy of insurance held by himself on his life or herself on her life for the benefit of his or her children, or of one or more of them. Policies effected or appropriated under this section are exempt from attachment for debts due either by the insured or by persons benefited, and shall be unassignable by either of such parties. The insurance money while in the hands of the Company shall be free from and be unattachable for the debts either of the insured or of the persons benefited, and shall be paid according to the terms of such policies. Any or all premiums paid, when insured was insolvent, in fraud of the rights of creditors, are recoverable. Provision is also made for the insured to revoke any benefit conferred in any policy on a wife or children, or to vary the apportionment.

PROVINCE OF MANITOBA.—The law of this Province on the subject is very similar to, and in great part identical with, that of Quebec, as quoted above.

NEW BRUNSWICK.—There does not appear to be any 'Wives and Children Act' in this Province.

PROVINCE OF NOVA SCOTIA.—A married woman, in her own name or that of a trustee for her, may insure for her sole benefit or for the use of her children, or of herself and her children, her

own life, or, with his consent, the life of her husband, and the amount payable under such insurance shall be receivable for the sole and separate use of such married woman or her children, or herself and her children, as the case may be, free from the claims of the representatives of her husband, or of his creditors. A policy of insurance effected by any married man on his own life, and expressed upon the face of it to be for the benefit of his wife, or of his wife and children, or any of them, shall inure and be deemed a trust for the benefit of his wife for her separate use, or of his wife and children, or any of them, according to the interest so expressed, and shall not, so long as any object of the trust remains, be subject to the control of her husband or to his creditors, or form part of his estate.

PROVINCE OF PRINCE EDWARD ISLAND.—It shall be lawful for any person to insure his life for the benefit of his wife, or of his wife and children, and of his children only, or some or one of them, and to apportion the amount thereof as he may deem proper, where the insurance is effected for the benefit of more than one of them.

Upon the death of the person whose life is insured, the insurance money due upon the policy shall be payable according to the terms of the policy, free from the claims of creditor or creditors whomsoever, notwithstanding the bankruptcy or insolvency of the person so insured.

PROVINCE OF BRITISH COLUMBIA.—The preceding extracts from the law of Prince Edward Island are incorporated in the law of British Columbia, omitting the last phrase as to bankruptcy and insolvency.

Provision is also made for the assured to borrow on the security of the policy to keep it in force, and also to surrender the policy for a Free Policy, and give a valid discharge apart from the wife and children.

Industrial Insurance.

Only one native Company is at present doing an Industrial business in Canada, while a second is allowing a small amount of Industrial business which was written some few years ago to gradually die out.

One American Industrial Insurance Company has been doing a moderate business, but the passing of the Corporations Act, 1892 (Ont.), in which a limit was placed on the amount that might be written on lives of children at various age-groups, tended to check this Company's business in Ontario.

The total amount of Industrial Assurance in force in Canada at 31st December 1892 was only about $2,720,000.

Apart from a few of the larger cities, it is obvious that a sparsely-settled country like Canada does not form a very favourable field for this class of business, nor does it seem to meet with much popular favour when introduced.

Rebating.

The demoralising effect of rebating commissions has led in Ontario to the inclusion of an important clause in the Corporations Act, 1892, by which it is made an offence for a corporation or agent to allow a rebate of premium on sums assured of $5000 and upwards; and a corporation which rebates is liable to have its registration cancelled, *i.e.* its authority to undertake contracts in Ontario. The utility of the above enactment is largely impaired by including only assurances of $5000 and upwards; and it would appear that this limitation was contrary to the desire of the principal Companies and managers. It is felt that the benefit of such a legal enactment will not be fully realised until 'rebating' is entirely prohibited, irrespective of the amount of the assurance, and even then only with the co-operation of both the managers and agents of the various Companies. In 1892 a rebate Bill was introduced into the Dominion Parliament, but did not succeed in becoming law. No other province, besides Ontario, has yet passed a law prohibiting 'rebating' in life assurance.

Assignment of Policies.

The question of the assignment of policies and the effect of same is governed largely by common law, and an assignment, when made in good faith and by the assured when in solvent circumstances, would prevail. It is necessary, however, that notice of the assignment should be given to the Insurance Company to preserve priority, inasmuch as without notice the Company, upon the policy becoming a claim, might deal with the personal representatives or others claiming the policy. Where an assignment is actually made in defraud of creditors, neither in England nor here will notice avail to place the policy beyond their reach. The rule generally applies that the assignee takes subject to any equities against the assignor.

The assignment of policies to trustees for wife and children is governed by the Common Law as well as by the Statute Law, reference to which latter is made in this paper, and the general principle above outlined is emphasised in that Statute at section

20, which requires notice to be given to the Insurance Company, and a copy of the assignment deposited, and that in the absence of such the Company are at liberty to deal with the insured, or his executors, administrators, or assigns. Special attention is therefore called to the necessity of notice to the Company, but it should be mentioned that, when deeds or other documents are marked as having been intimated to a Company, it would not necessarily be intended to express any opinion on the part of the Company or its officers as to the validity or effect of such deeds, documents, or notices.

The question as to the Law governing assignments where the same are made outside the province or country of the Company issuing the policy was fully discussed in the case of the Toronto General Trusts Company *v.* Sewell, in which the learned Judge followed the rule laid down by Mr. Justice Wills in Lee *v.* Abdy (17 Q. B. D. 309), viz., that the *lex loci* must prevail; and as this case does not appear to have been overruled, it would seem to govern generally.

No bankruptcy law is at present in force in Canada, the Insolvency Act having been repealed, but a very strong feeling prevails that the Dominion should re-enact the law with some modifications. In Ontario there exists a law in reference to assignments for the benefit of creditors, which in effect takes the place of a bankruptcy law. The question as to the legal jurisdiction of a Province passing such an Act has recently been before the Privy Council. Compared with Canada, the English Law, in case of assignment of a policy during bankruptcy, is more rigid in its exactions against the debtor, and so the courts in England lay greater force on the formalities observed in connection with an alleged assignment. Notice to the Company, the delivery and possession of the policy, are consequently of more importance there than here.

Speaking generally, the principal distinction between decisions on assignments of policies in England and America is a disposition to relax here somewhat the English common-law doctrine on the subject, and to regard the policy more as a quasi-negotiable instrument in view of its assignability.

The great flexibility of the Ontario Wives and Children Act (*vide* sections 5 and 6, *ante*) opens a much wider door than do either the corresponding English or Scottish Acts for the defeating of the rights and claims of creditors. By section 5 of that Act the assured may at any time after the issue of a policy in his own name, bring his wife or children, or both, within the provisions and protection of the Act.

By original declaration or subsequent apportionment, the assured

entitled to recover as the premium (net H^M 4½ per cent.) proper to the stated age of such person bears to the premium (net H^M 4½ per cent.) proper to the actual age of such person, as at date of contract.' It will be noted the adjustment is now by law made on the basis of the net H^M 4½ per cent. table, whereas the prevailing practice has been to make the adjustment on corresponding gross premium rates, and the change to net premiums does not appear to meet with the approval of the Companies. This rule affects all Companies hitherto or hereafter effecting policies in Ontario.

PERIODICAL VALUATION.—As indicated in a previous part of this paper, the Dominion Insurance Department makes a valuation of the policy liabilities of each Company once in five years, according to the H^M 4½ per cent. table. This table is also adopted as the standard of the Ontario Insurance Department for local Companies doing business in Ontario only.

DISTRIBUTION OF SURPLUS.—Excepting the prospectuses and reports of the oldest Canadian Company, the Canadian Companies do not give any details as to the principles and methods adopted in their distribution of surplus, beyond claiming in some cases 'an equitable method of dividing profits.'

For ordinary divisions of surplus the period of division is in almost all cases five years. A fact worthy of special mention is that at its division of profits in 1870, 1875, and 1880, the oldest Canadian Company declared a bonus addition upon the original sum assured of 2½ per cent. per annum, while in 1885 the rate was 2⅝ per cent. per annum, and in 1889 2½ per cent. per annum. Since the organisation of the Company in 1847 the bonus addition has averaged over 2 per cent. per annum. Profits in this Company may be applied either as reversionary bonus, cash, five-year temporary reduction, or permanent reduction of premium. At each of the previously mentioned dates, the unusual course (in America) has been pursued of making public the profits at *each age* on all the above options. Other Canadian Companies do not usually allow profits by way of permanent reduction of premium. A large portion of business in Canada is written on the Tontine profits system, wherein the inevitable 'estimates' play a no unimportant part. Nearly all active Companies in Canada now issue policies on the Tontine Profits System, under one name or another. Five or six of the younger Canadian Companies have not yet been enabled to declare profits of any consequence either to policyholders or stockholders, but three or four of the older Canadian Companies (in addition to the oldest Canadian Company as above noted) have been making satisfactory profit returns for the

premiums charged. It may be mentioned that, following the long-established practice of the Scottish Amicable, the system of 'Minimum Premiums' was adopted by the Canada Life Assurance Company about 1876, wherein is made an immediate allowance for future profits at the rate of 1¼ per cent. per annum upon the sum assured, and the bonus addition profits on these policies (over and above the anticipated bonus) since then have not been less than 1¼ per cent. per annum.

DAYS OF GRACE.—Most offices usually allow thirty days' grace for the payment of premium, with privilege of reinstatement (on evidence of health) in periods varying from one month to one year. In some cases hardships have arisen with foreign Companies as to non-acceptance of premiums after the anniversary or due-date, and to cover this point an amendment was made to the Insurance Corporations Act in 1893, whereby all Companies doing business in Ontario must now accept premiums within thirty days of the anniversary date, and revive the policy irrespective of evidence of health, provided the assured has not died in the interval. A fine not exceeding five cents per week per $1000 of insurance, or twenty cents per $100 for the whole period may be charged. This applies to foreign as well as local Companies doing business in Ontario, and any stipulation or agreement to the contrary in the policy is, as against the assured, entirely void.

NON-FORFEITURE SCHEMES.—A majority of the Canadian Companies allow a paid-up policy on limited payment policies after two or three years for as many proportionate parts of the sum assured as there have been complete annual premiums paid. Where this privilege is allowed on limited-payment life-policies it is also usually allowed on endowment assurances, although on its ordinary premium policies the oldest Canadian Company has only hitherto applied this method to ten-payment life-policies. Whether the premiums charged by some Companies warrant this privilege is an open question, which need not be discussed here. Except in one or two cases this non-forfeiture scheme does not work automatically, but demand for the free policy has to be made, in periods varying from three months to one year from lapse. The method of granting *extended insurance* for such period as the surrender value will carry the policy for its full amount has not been in vogue among Canadian Companies, although one Company has recently adopted this among other privileges in a new policy.

ENDOWMENT ASSURANCES.—This combination of insurance and investment has been making continuous growth for some years, and seems to meet the wants of many, who, with western ideas of

accumulation and speculation, do not wish to have 'to die to win.' When there is such a pronounced public demand for such a legitimate form of policy, it seems prudent and expedient to fill the demand, as all regular Canadian Companies do. The policies are nearly all on the participating scale. Usually such policies are issued for 10, 15, 20, or 25 year periods. Two of the oldest Companies also issue these policies payable at a certain age, in one of which exists the old practice of making the birthday of the life assured and not the anniversary of the policy the date of maturity. It is needless to say this latter practice has had to bear the usual unfair charge of requiring 'one more premium.' The word 'Endowment' is usually used in America as equivalent to 'Endowment Assurance.' The Government reports do not show what portion of each Company's business is on the life plan and what on the endowment, so that it is not easy to give precise data as to the growth and extent of endowment assurance in Canada.

Amendment to Insurance Corporations Act.

Before concluding, reference should be made to an important amendment, not hitherto noticed, to the Insurance Corporations Act (1892), which was passed in 1893, as it affects the policy contracts of all Companies, domestic or foreign, doing business in Ontario. This amendment is apparently also retroactive in its character. It reads as follows:—'Provided that when the subject-matter of the contract is property or an insurable interest within the jurisdiction of Ontario, or *is a person domiciled* or resident therein, any policy, certificate, interim receipt, or writing evidencing the contract shall, if signed, countersigned, issued or delivered over in Ontario, be deemed to evidence a contract made therein, and the contract *shall be construed according to the law thereof; and this proviso shall have effect notwithstanding any agreement or stipulation to the contrary.*'

By this amendment, for example, policies issued by a foreign Company (whose native state laws make no provision for, or prevent the assured dealing with the policy, with or without the legal consent of the wife or children), are now subject to the laws of Ontario, and the policies can be dealt with by the assured accordingly.

APPENDIX.

Table (A) showing date of commencement of business in Canada (and other data) of Life Assurance Companies.

(*Canadian Companies in italics.*)

Date of Entry.	Name of Company.	Date of Retirement.	Date Reinsured and Where.	Failed.	Still Licensed 31st Dec. 1892.
1846	Scottish Amicable, .	1878			
1847	*Canada Life*, . .	...	...	...	Licensed.
1847	Standard Life, .	...	...	...	Licensed.
1850	Ætna Life, . .	...	...	...	Licensed.
1851	Liverpool, London and Globe.	...	...	...	Licensed.
1851	Royal, . . .	...	...	...	Licensed.
1857	Edinburgh, . .	1877			
1857	Life Association of Scotland.	1878			
1859	Scottish Provincial,	1875			
1859	Queen Insurance Company.	...	1892 Royal		
1862	London Assurance Corporation.	...	...	...	Licensed, but ceased new business.
1862	North British and Mercantile.	...	...	...	Licensed.
1863	Commercial Union, .	...	..	...	Licensed.
1863	London and Lancashire.	...	...	..	Licensed.
1865	Travellers, . .	...	...	...	Licensed.
1866	Phœnix Mutual, .	1878			
1867	Atlantic Mutual, .	1877	...	1877	
1868	*Citizens*, . . .	...	1892 Sun Life		
1868	Connecticut Mutual,	1878			
1868	New York Life, .	1878, but returned 1883.	...	...	Licensed.
1868	Star Life, . .	...	...	...	Licensed.
1868	Union Mutual, .	...	...	...	Licensed.
1868	Equitable New York,	...	...	...	Licensed.
1868	Reliance Mutual, .	...	...	...	Licensed, but ceased new business.

Date of Entry.	Name of Company.	Date of Retirement.	Date Reinsured and Where.	Failed.	Still Licensed 31st Dec. 1892.
1870	*Ontario Mutual*, .	...	...	...	Licensed.
1870	Briton, Medical and General Life Association.	1875	...	1886	
1871	*Confederation*, .	...	...	...	Licensed.
1871	North-western, .	1878			
1871	*Sun Life*, . .	...	...	...	Licensed.
1872	*Life Association of Canada.*	1888	Partially in 1886 in Confederation.		
1872	Metropolitan, . .	...	...	...	Licensed.
1872	*Toronto Life*, . .	...	1884 Federal.		
1873	Globe Mutual U.S.,	...	...	1879	
1873	United States, .	1877 Returned 1882	...	...	Licensed.
1874	*London Life*, . .	...	...	...	Licensed.
1874	Positive Government,	1876			
1875	*Stadacona*, . .	...	1878 Confederation.		
1876	Briton Life Association (Limited).	1887	1887 British Empire.		
1876	National Life, . .	1878			
1881	*North American Life*,	...	...	...	Licensed.
1881	Lion Life, . .	...	1883 British Empire.		
1881	*Dominion Safety Fund.*	...	...	...	Licensed.
1882	Federal, . . .	...	...	...	Licensed.
1883	British Empire, .	...	...	...	Licensed.
1885	Mutual Life N.Y., .	...	...	...	Licensed.
1886	*Temperance and General.*	...	...	...	Licensed.
1887	Germania, . .	...	...	...	Licensed.
1887	*Manufacturers*, .	...	...	...	Licensed.
1889	Provident Savings, .	...	...	...	Licensed.
1889	*Dominion Life*, .	...	...	...	Licensed.
1892	*Great West*, . .	...	...	...	Licensed.

Scottish Provident. Date of Entry not ascertained, but it had $272,000 at risk in 1869.

Notes on Widows' Funds

BEING

THE INAUGURAL ADDRESS

TO THE ACTUARIAL SOCIETY OF EDINBURGH

FOR THE SESSION 1894-95

BY

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PRESIDENT OF THE SOCIETY

Notes on Widows' Funds.

AN INAUGURAL ADDRESS.

GENTLEMEN,—I have to express my most sincere and cordial thanks to you for the honour which you have conferred upon me, by having for the third time elected me as President of the Actuarial Society.

I have been a member of the Society almost from its commencement; and before the date of my becoming a member, I was permitted, as a young student, to attend some of the meetings. Thus it happened that I was present at the first meeting, and had the privilege of hearing the first inaugural address, delivered by the first President, the late Mr. William Thomas Thomson, a gentleman who was practically the Founder of this Society and also of the Faculty of Actuaries, and to whom both Societies are under very great obligations.

When recalling what took place in the first session of the Society, I may be permitted to refer to three notable papers by Mr. James Meikle, which I also had the privilege of hearing read, on the Nature, Calculation, and Sufficiency of the Premium required for Assurance of a Sum at Death, afterwards published under the title of "The Rationale of Life Assurance Premiums." The author of these early papers has frequently filled the Presidential Chair, and has been extremely helpful to this Society throughout its whole existence; but if (instead of being the most extensive contributor to the Transactions of the Society) he had done nothing beyond giving us these papers, he would nevertheless have placed the Society deeply in his debt. To all our young students these papers have simply proved invaluable, serving as keys to unlock the entrance-gate of Actuarial knowledge, and to open the way to more advanced studies.

Before leaving these reminiscences, I should like to bear testimony, from my personal experience, to the very great usefulness of this Society to those members who have advanced beyond the stage of mere listeners, and who are able to take an active part in the proceedings by reading papers and speaking at the meetings; and especially to those who, as Vice-Presidents, Secretary, Treasurer, or Members of Committee, are responsible for maintaining the efficiency of the Society, and who, in conscientiously discharg-

ing that responsibility, are conferring upon themselves a most valuable educational experience.

There is one matter connected with the honour which you have conferred upon me which has given me serious concern. It is your custom to impose upon your President the duty of giving an address at the opening meeting of the session. Now, as years roll on, it becomes more and more difficult for each new President to select a suitable theme on which something fresh and interesting to the members can be said. No fewer than 210 papers have been read to your Society; and of these, thirty-one have been inaugural addresses. Eleven of the inaugural addresses have treated of the duties and education of an Actuary, or the position and prospects of the Actuarial profession; four have dealt with office administration, the ethics of business, and the exercise of independent thought by a manager and his subordinates; four more have discoursed on statistics, selection of life, and mortality of assured lives; three have gone fully into investments and the future interest of money; and one took the form of an interesting and exhaustive review of the history and work of the Actuarial Society. As to the remaining eight Presidential addresses, in the case of half-a-dozen of them the subjects selected have been handled in so masterly a way as to offer no encouragement to any successor to take up the same topics; while, in the case of the other two, as they were contributed by myself, it would scarcely be becoming in me to say anything about them.

When considering as to whether there was any subject on which I could offer a few remarks, I was naturally desirous, both for your sakes and my own, to avoid the mere repetition, in a less effective way, of the words of instruction and advice given by my able predecessors; and it has thus come about that, after consulting your excellent Secretary and one or two other friends, I have ventured to select as my text, "Widows' Funds." By the term Widows' Funds I mean those annuity schemes, chiefly for the benefit of widows, and which do not strictly fall within the category of Life Assurance Companies, nor within that of Friendly Societies, but which nevertheless require, equally with these bodies, the aid of Actuaries in connection with their periodical investigations, and which present some features calling for special care, if not for special skill, on the part of the Actuaries employed. There are more than a dozen schemes of this kind administered in Edinburgh, and their aggregate funds amount to about Two Millions Sterling.

Widows' Funds date back to a period antecedent to the establishment of life assurance companies. They were developments of the assessments for charitable purposes made in connection with the ancient gilds, which originated on the Continent of Europe,

but extended at a very early date to England and Ireland, and also to Scotland. The word gild, guild, or geld, signified a tax or tribute, or assessment or composition, or mulct. In Domesday Book it is said of the burgh of Totenais that it "did not geld but when Exeter gelded, and then it paid twelve pence for geld." Gild thus came to mean an associated body or brotherhood of all the merchants in a town, or of the craftsmen in a particular trade; a leading feature of the association being that each member was bound to pay a tax or assessment towards the common charges. The gilds were originally of two kinds—the ecclesiastical and the secular—the former being purely for religious objects, and the latter being established for trade purposes; but both having this in common, that the members were bound by their vows to engage in certain devotional exercises and deeds of charity.

The objects of the *gilda mercatoria*, or "gilds merchant," and of the craft gilds (which were established when there was greater subdivision of labour) included attendance at the funerals of deceased members, prayers for the dead, alms deeds, assistance to the brethren in sickness, settlement of quarrels between members without litigation, abstinence from slander and from malicious imputations against other members, protection of trade interests, regulation of trade morality by condemning such abuses as short weights and measures, the use of shoddy material, or the scamping of work. To these many of the gilds added various social and educational functions, and some of their benevolent schemes foreshadowed the benefit societies and the widows' funds and insurance companies of later times. But justice compels the admission that if these mediæval gildsmen were kind and loving towards the members of their own gild, they were too frequently harsh, oppressive, and cruel to those outside its pale, and the larger part of the energies of the gild was often devoted to securing the exclusion of all rivals from the advantages and privileges which their members enjoyed.

During the two centuries prior to the Reformation, the English Statute-book contained frequent references to their exactions, "after their own sinister mind and pleasure," the "outrageous hardships" to which they subjected the public; the unreasonable ordinances "for their owne singler profite and to the comen hurt and damage of the people"; and a more recent example of their objectionable conduct shows them, in the year 1614, as "Picketers." In that year the Company of Mercers and Ironmongers of Chester, ordered T. Aldersey, who had married the niece of an ironmonger, to shut up his shop. He refused. "Soe daie by daie two walked all daie before the said shopp and did forbid and inhibitt all that came to buy wares there." The mayor ordered them to depart; but they refused to obey, and said that they were sworn to their Company to do as they had done. "And soe they walked and

and without interruption for almost a century—that of the Ministers since 1744, and that of the Excise since 1748. It was not, indeed, to be expected that persons engaged with the business of an assurance office should seek for the necessary information, or feel any inclination to promote such institutions; but it is not easy to account for the fact that, among the numerous corporate and professional bodies of England, the experience of these two associations, so applicable to their own case, should, as far as is known, have attracted no notice and led to no imitation. During the last thirty years a number of Acts have been passed for establishing Widows' Funds in Scotland and amending their rules, but the Statute-book has been examined in vain for any similar Acts in England. In that country, it would appear, the widows of persons in the middle, as well as in the lower ranks, are often left so destitute as to require the aid of charity, including grants voted annually by Parliament; while in this, the Church, the Law, the Medical Profession, and the Corporations of the large towns . . . provide annuities to their widows to be enjoyed as a matter of right."

Mr. Cleghorn was evidently unaware that in 1699 the Mercers' Company, after long negotiation with a Committee representing the clergy of the Church of England, agreed to establish a Widows' Scheme for all and sundry, but with the expectation of having the clergy as the chief supporters of the scheme. The plan adopted was to grant a survivorship annuity to the wife in return for each £100 contributed by the husband, the contribution being either by way of a single payment at the outset, or as an annual payment ceasing when the husband attained age 60. The annuity was at first fixed at £30, but on 26th August 1717 the following notice was issued by the Company:—

> "National interest of money is reduced from 6 to 5 per cent. per annum, and whereas the said Company hath for several years past received subscriptions to pay £30 per annum to the widows of subscribers . . . the said Company hath resolved to receive subscriptions for the future only after the rate of £25 per cent. per annum for the benefit of the widows of subscribers . . . by virtue of any subscription to be made for the time to come. . . . *No one to be admitted after* 50."

In April 1723, on interest falling to 4 per cent., the rate of annuity in the case of new subscribers was reduced to £20. Subsequently it was reduced to £15; and after the scheme had been in operation for about fifty years the Company had to make the humiliating confession that it was unable to meet its liabilities, this result having been brought about in part by the fall in the

rate of interest, but being chiefly due to the optional character of the scheme, and to the adverse selection exercised by those joining, the age of the wife being in most cases very much younger than that of the husband.

By the aid, however, of a Parliamentary Grant of £3000 per annum, the Company was, after a time, enabled to resume payments and to clear off arrears. It is probably not surprising that this Annuity Scheme had not come under the observation of Mr. Cleghorn; but it seems very strange that he should not have known of the various other Widows' Schemes established in England in the latter half of last century. In April 1765 the clergy of London and Middlesex formed themselves into such a society; and in 1771 we find evidence of the existence of two societies of the kind for Dissenting Ministers,—one for those in Cheshire and Lancashire, and the other for those in the counties of Northumberland, Cumberland, Westmoreland, and Durham; while in the City of London, at that period, there were numerous associations for providing annuities to widows, most of these associations, however, being in an unsound condition. In the year last mentioned the learned Dr. Price brought out the first edition of his *Observations on Reversionary Payments and on Schemes for Providing Annuities for Widows, etc.*; his chief object in bringing out this work being, as stated in the preface, to explain the principles on which Widows' Schemes should be founded, and to expose the unsoundness of most of the societies of the kind then existing in London. The learned author took particular notice of the Church of Scotland Scheme, and showed himself to be well acquainted with its principles, which he described at considerable length. As in this work he incidentally gave to the world his Northampton Tables, and as seven editions of the work were published between 1771 and 1812, we may feel certain that it was very widely read, and that Mr. Cleghorn was completely in error in supposing the English Actuaries of his time to be ignorant on the subject of Widows' Funds.

Many of the schemes of that time, which were of the type denounced as unsound by Dr. Price, Mr. William Dale, and other competent authorities, were perfectly honest in intention, and some of them were reconstructed under actuarial advice, and were in existence in 1812 or later; indeed, I rather think that one or two of them still exist in some form. In the course of my inquiries I have come across the fact that, in the early part of the present century, most of the English societies of the kind which then survived were in the habit of employing Mr. William Morgan, of the Equitable Society, as their Consulting Actuary. In connection with the utterly inadequate premiums often charged in

these days, it must be remembered that the laws of mortality were only beginning to be understood, and that, within the recollection of many persons then living, extraordinarily favourable terms of life annuities had been offered by the British Government; the prices at which such annuities were granted in 1704, for instance, having been nine years' purchase for single lives, eleven years' purchase for longest of two lives, and twelve years' purchase for longest of three lives, irrespective altogether of age; while forty years later, the few English Life Assurance Offices then in existence charged the same rate of premium for all ages under 45.

If Scotland cannot be credited with having been the sole or the earliest producer of Widows' Funds, it must be admitted that she can claim the honour of having given birth to some of the most famous among the schemes of that kind. I do not here allude to the Scottish Widows' Fund, of which we all are proud, but to the Widows' Schemes established in Scotland in the eighteenth century, and most of which were originally founded on what is now termed the Maximum plan.

Under that plan, the aim was gradually to accumulate a stock or capital of such amount that the interest earned thereon, together with the annual contributions of the members, should suffice for the payment of the maximum amount of annuities and expenses ever likely to come upon the fund at any one time. On the maximum amount of outgo arising, the maximum amount of necessary accumulated stock or capital was simultaneously reached, and the annual surplus, if any, accruing thereafter could safely be applied to increase the annuities or decrease the contributions. Such a plan is only suited to the case of a compulsory scheme with a stationary membership. Where such conditions have existed, where the rates have been adequate, where the scheme has been administered with care and economy, and, above all, where there has been a proper understanding as to the necessary amounts to be set aside and invested year by year, out of the income, during the long period elapsing before the maximum amount of claims is experienced—then, in such cases, the results under the Maximum plan have been satisfactory.

The best known example of an Annuity Scheme, successfully carried out on the Maximum plan, is the Fund for Widows and Orphans of Ministers of the Church of Scotland and Professors in the Scottish Universities, to which I have already incidentally alluded, and I think it may interest you if I give some particulars of the data and calculations on which that scheme was based, and of the difficulties which had to be surmounted in placing the Fund on a firm basis. The chief promoter of the scheme was "Master Alexander Webster, one of the Ministers of the City of Edinburgh." His idea was to introduce a scheme which should

be *optional* on the part of ministers and professors then holding office, but *compulsory* on their successors; and the benefits which he aimed at, and which were embodied in the scheme as approved by Parliament, were: (1) An annuity to the widow of each contributor, ceasing on her re-marriage, the amount to be £10, £15, £20 or £25, according to the rate of contribution selected; (2) a payment equal to ten years' annuity where one or more children were left but no widow; (3) a sum for behoof of a child or children where the widow died, or re-married, before she had drawn the annuity for ten years, such sum to be equal to the balance of ten years' payments of annuity, and to be payable only if there was at least one child under age 16.

With a view to the determination of rates of contribution to secure these benefits, a list of queries was drawn up and sent out to the various presbyteries of the Church and to the Universities. From the answers received, as subsequently corrected, it was ascertained:—

(1) That there were 942 existing benefices in the Church, whereof 45 were, on the average, vacant, and 897 were full; that there were 69 professorships in the Universities, whereof 4 were, on the average, vacant, and say 65 were full; that the combined number of benefices and professorships was thus 1101, whereof 49 were vacant, and 962 were full;

(2) That, on the average, 27 ministers died yearly, of whom 18 left widows, 5 left a child or children but no widow, and 4 left neither widow nor child; and that assuming the experience of the professors would be in the same proportion, 28·956 would die out of the 962 ministers and professors; and, of these, 19·304 would leave widows, 5·362 would leave children but no widow, and 4·290 would leave neither widow nor child;

(3) That, on the average, 28 of the combined body of ministers and professors married in each year;

(4) That of the widows who died or re-married in each year 3, on the average, left one or more children; and probably 2·22 of these might be expected to leave a child or children under 16; but in respect that no payment was contemplated where the widow had already drawn her annuity for 10 years; that the amount given would be restricted to the balance of 10 years' payments; and that no provision need be made for the cases in which the payment would be incurred by reason of re-marriage

of the mother, as her annuity would cease, thus relieving the Fund of a liability of probably greater value,—it appeared to be sufficient to provide for 1½ claims of this kind per annum, as a maximum, and to assume that the amount of each claim would on the average be equal to £100, or about 5 years' payments of annuity;

(5) That the highest number of widows of ministers in life at any one time was 321;

(6) That the medium age of entrants to benefices and professorships was believed to be 27; and that the medium age of widows of ministers and professors at the date of the death of the husband was believed to be 52.

Founding on the above data, Mr. Webster made some preliminary calculations, which I have not seen, but which I imagine probably took the following shape:—

Maximum Annual Liabilities:—

Annuities at an average rate of, say, £20 to 321 Widows, .	=£6420
Payments to 5·362 Families at the rate of £200 each, . .	= 1072
Payments to 1½ Families at the rate of £100 each, . .	= 150
Expenses of Management, ...	= 210
	£7852

Dividing the above amount by 962, the estimated number of contributors, the sum of £8·162 is arrived at, which represents the annual contribution necessary to secure annuities of £20, and corresponding children's provisions, on the footing *that all the existing Widows left by previous Ministers and Professors were to be admitted to the Fund; and that if any of these died or re-married after a shorter period of widowhood than ten years, a payment would fall to be made from the Fund in cases where there was a child or children under* 16, *also that there was to be no marriage-tax, and no contribution from vacant stipends.* But there was no intention of admitting to the benefits of the Fund the widows or children of ministers and professors who had died before the establishment of the scheme, and who had not contributed to it; and although the original members who were married at the date of their accession to the scheme were to escape marriage-tax in respect of their marriage then subsisting, they were to be required to pay an extra year's contribution in respect of each subsequent marriage; and future entrants, if married, had to pay an extra sum equal to one year's contribution on joining, and if admitted as bachelors they were required to pay a similar tax on marrying. Also a contribution equal to a year's average rate was to be paid out of vacant stipends. Accordingly, the calculation probably proceeded thus:—

(*Interest taken at* 4 *per cent.*)

Value of Annual Liability of £7852 for Annuities, payments to children and expenses, estimated as a perpetuity, . .		£196,300
Deduct—		
(1) Value, by the Breslau Table, of 321 Annuities of £20 on lives of existing Widows left by Ministers and Professors who died prior to the establishment of the Scheme, the ages of such Widows being taken as 60 (their average age at commencing Widowhood being 52, and 8 years being added thereto, as representing half of the expectancy of life at age 52 per the Breslau Table), ...	£58,984	
(2) Value of Payments to Orphan Families under the age of 16, left by the 321 Widows of Ministers and Professors who died as above mentioned, say, ...	450	
		59,434
Balance, being Value of the Annual Contributions and Marriage Taxes payable by present and future Members, and of the future payments from vacant Stipends, ...		£136,866

Value of each £1 of Contribution, estimated as a perpetuity:—

(1) Ordinary Annual Contributions, . .	£1 × 962 × 25 =	£24,050
(2) Marriage Taxes, ...	£1 × 28 × 25 =	700
(3) Payments from Vacant Stipends, . .	£1 × 49 × 25 =	1,225
		£25,975

$$\frac{£136,866}{£25,975} = £5{\cdot}269 = £5\ 5\ 5$$

This result exceeds by 5d. the annual contribution fixed by the first Act of Parliament in the case of persons selecting the £20 annuity. On the other hand, in the case of the entrants subsequently joining at the average age of 27, according to the method of calculation likely to be then employed, the contributions, even without the marriage-tax and the sums from vacant stipends, were sufficient to meet the liability, thus:—

(*Breslau* 4 *per cent.*)

Value, as at date of commencing Widowhood, of Annuity of £20 to a Widow then aged 52, this value being diminished in the proportion of the number of Ministers and Professors leaving Widows to the whole number of Ministers and Professors dying annually:—

$$(10{\cdot}92 + {\cdot}25) \times £20 \times \frac{19{\cdot}304}{28{\cdot}956}, \quad = £148{\cdot}9$$

Children's Provision where no Widow is left, diminished in the proportion of the number of such cases to the number of deaths of Ministers and Professors:—

$$£200 \times \frac{5{\cdot}362}{28{\cdot}956}, \quad = 37{\cdot}0$$

£185·9

The above estimated as payable on death of the Contributor:—

$A_{27} = \cdot 383$ $\quad \cdot 383 \times £185 \cdot 9$, ... = £71·2

Provision for children under 16 after death of Widow, divided by the number of Widows coming on the Fund annually:—

$A_{52} = \cdot 542$ $\quad \dfrac{\cdot 542 \times 1 \cdot 5 \times £100}{19 \cdot 304}$ . . = 4·2

£75·4

Divided by a_{27} (= 15·04)

$\dfrac{£75 \cdot 4}{15 \cdot 04} =$ £5·01 = Annual Contribution, omitting provision for expenses.

Add for expenses, $\dfrac{£210}{962} =$ ·22

£5·23 = £5 4 7

. . . . .

The next step of the founders was to estimate the necessary fund which would have to be accumulated against the time when the annuities had reached their maximum. It was done somewhat as follows:—

Payments—

To 321 Widows at £20, ...	£6420
,, 5·362 Orphan Families at £200, ...	1072
,, 1·500 ,, ,, ,, £100, ...	150
,, Collector and his Clerks (Salaries and Expenses),	210
	£7852

Receipts—

From Annual Rates,	962 at £5, 5s.,	= £5051	
,, Marriage Tax,	28 ,,	= 147	
,, Vacant Stipends,	49 ,,	= 257	
			5455
Deficiency to be met from Interest on Fund, . .		=	£2397
Fund which, at 4 per cent., would yield the requisite income, ...		=	£59,925

In order to obviate the trouble and delay involved in lending out the funds on mortgage in the ordinary way, and in satisfying a scattered body of trustees as to the sufficiency of the security in each case; and, with a view to avoid the risk and expense and the variable nature of the return, associated with investments in public securities, Mr. Webster devised the ingenious expedient of advancing to the contributors themselves the whole of the early accumulations in sums of £30, the allocation of these loans to be according to a certain order fixed beforehand, and each minister and professor being bound to accept the loan allocated to him and to pay interest thereon at 4 per cent. This arrangement was embodied in the first Act of Parliament regulating the scheme, and its effect was to provide for the disposal of a sum of £28,960, which represented the prospective surplus revenue of the first

seven years. The further capital required to be gradually accumulated against the period when the maximum amount of claims might be expected to come in was thus £30,965, being the balance of the sum of £59,925 brought out by the preceding calculation; but in order to allow a little margin it was fixed by the Act of Parliament at £35,000, thus making the total capital £63,960. [The amount was sometimes stated at £65,000, the sums lent out to contributors being roughly estimated at £30,000.]

After the Fund had been a few years in operation, it was seen that some of the assumptions which had originally been made required amendment. The optional character of the scheme, so far as concerned the ministers and professors holding office at the date of the Act, and the free selection of the scale of contribution and benefit allowed to all, irrespective of their ages and those of their wives, had resulted (1) in the non-accession of a considerable proportion of the number of ministers and professors who were then bachelors; and (2) in choice of the highest scale by the older married men, who were likely to pay few contributions and to bring liabilities on the Fund at an early date, while the younger men chose the lower scales. Happily the danger was soon observed by Mr. Webster, who was ever on the watch to avert disaster from the scheme, of which he was the faithful guide, philosopher, and friend. He instituted a fresh series of elaborate calculations, and submitted them to the criticism of "George Drummond, Esquire, Lord Provost of Edinburgh, the Reverend Mr. Matthew Stewart, Professor of Mathematics there, and Mr. Alexander Chalmers, Accountant." These gentlemen appear to have made attestation "That the Principles and Data seem to them *every Way* just, and as well founded as the Nature of the Thing will admit, and that the CALCULATIONS are carried on with great Skill and Exactness." Through the kindness of Mr. J. T. Maclagan, the present Collector, and Mr. Inglis, the Secretary to the Trustees, I have now the privilege of exhibiting to you an original print of these early calculations, extending to upwards of fifty folio pages. I may say that as the result of these calculations a new Act of Parliament was obtained in the year 1748, introducing various precautionary regulations.

In the year 1771, Dr. Price, as I have already mentioned, devoted a great deal of attention to Widows' Schemes; and in the course of his enquiries he was led to examine the basis of the Church of Scotland Scheme, and to express some doubt as to its soundness, although admitting that its contributions were not so grossly inadequate as to lead of necessity to disaster. But after a correspondence with the founder of the scheme, and after careful study of the set of calculations which I have just now exhibited to you, and of some later ones, he, in a later edition of his

Observations, withdrew his slightly adverse remarks, and paid a handsome tribute to the skill and to the "kind and very obliging candour" of the "reverend and ingenious Doctor Webster"; adding, "Having bestowed a good deal of attention on this institution, I cannot take leave of it without congratulating Dr. Webster on his happiness. By being the founder of this scheme, and by the care with which he has watched its progress and conducted it to its present state of maturity, he has entitled himself to the blessings of many indigent widows and orphans, and made it impossible that he should ever be remembered in the Church of Scotland without gratitude and respect."

I shall now pass rapidly on to the causes which led to the partial abandonment of the Maximum plan. In 1778 a fresh Act of Parliament had been obtained, imposing an age tax equal to 2½ years' contributions, in the case of entrants of 40 and upwards, who were either married or widowers with children at the date of their joining. By the same Act, the arrangement for lending out the funds in sums of £30 to the contributors was abolished, as having been found to be hurtful to the recipients. In 1814 a further Act was passed, introducing entry-money of £10, and increasing the contributions and marriage and age taxes by 20 per cent., the object being to secure increased annuities to the widows of future members and of such of the existing members as agreed to pay the increased contributions. As the result of these and other changes the annuities were increased, until in 1827, on the capital reaching £117,000, they amounted to £22, £30, £38, and £46 respectively, the slight variations from the original proportions in the different classes being chiefly due to the introduction of a uniform entry-money irrespective of the class selected. All went on favourably until 1843, the year of the great Secession or Disruption, when 270* ministers left the Church, and their places were supplied by an equal number of new appointments. As the seceding ministers retained their rights of membership in the Widows' Fund, while their successors in the benefices were compelled by law to join the Fund, it followed that a sudden and large increase took place in the membership which seriously disturbed the arrangements of the scheme. The subsequent history of the Fund is related in the reports of Mr. W. T. Thomson (at 22nd November 1849, and 22nd November 1861), and of Mr. James Meikle (at 22nd November 1875, and 22nd November 1891), which are to be found in our Library. It may suffice to say here, that on the occasion of the second investigation by Mr. Thomson, the "Maximum" plan was abandoned; and from

* The actual number of ministers who left the Established Church was 474, but of these only 270 were ministers of parishes and contributors to the Widows' Scheme.

that time onward the valuations have been made on a system analogous to that employed in the case of a Life Assurance Company.

I would now invite your attention to the more modern Widows' Schemes which, for the most part, occupy an intermediate position between the Maximum schemes which I have described, and the Survivorship Annuity schemes of Life Assurance Companies. These modern schemes are almost without exception compulsory, experience having shown that optional societies cannot be conducted with success. Where a scheme is optional, only those who are already married, or who have the immediate prospect of marriage, are likely to join, and consequently, in order to be safe, the contributions have to be fixed on the assumption that every member will marry, the result being that the benefits are at best not any larger than those which could have been obtained from a life assurance company for the same annual payment. But, where the scheme is compulsory, the contributions of those members who remain unmarried (usually from 20 to 33 per cent. of the whole number of members) go to supplement the payments of the married, with the effect that these latter obtain survivorship annuities for their wives on terms which are often less by from 20 to 33 per cent. than those which would be charged by a life assurance company for similar annuities; this advantage to the members who marry coming of course out of the pockets of those members who remain bachelors for life. Occasionally, where a Fund has been largely increased by donations, or by receipts from extraneous sources, the married members have obtained even a greater advantage than that which I have indicated—that is to say, they have been enabled to secure annuities for their widows at less than two-thirds of the value of these annuities. Of the modern schemes in existence in Scotland, the principal are those connected with the leading legal and other professional bodies, and those established for the benefit of the employees in the larger banks. The mode of procedure usually adopted by the framers of such schemes was to fix upon a suitable standard age at entry, the member being supposed to be unmarried when he joins the Fund. The next step was to form an estimate of the average interval of time which will elapse between the date of membership and the date of marriage; and of the proportion of those who, after surviving that interval, remain bachelors for life. The average age of the wife in the case of the first marriage was then assumed; and the mean duration of the first marriage was ascertained or estimated; the remaining steps being to ascertain the proportion of first marriages dissolved by the death of the husband, the proportion of re-marriages occurring among the widowers, their average age on re-marriage, and

the average age of the second wives. In starting a Fund of the kind, in the case of a society which had not previously had occasion to keep a record of these facts, many assumptions had to be made, and some of these had to be corrected after the Fund had been in operation for some time; but it is a circumstance highly creditable to our Scotch Funds, that, in the great majority of cases, the assumptions appear to have been made with much shrewdness and caution. The following are the fundamental data used in framing the scheme for members of the Faculty of Advocates in Scotland:—

(1) Age at entry = 24.

(2) Duration of celibacy after entry = 6 years; thus making the age at marriage 30.

(3) Proportion of those reaching 30 who remain bachelors for life = $\frac{1}{6}$.

(4) Age of wife = 25, or, say, 5 years younger than the husband.

(5) Mean duration of first marriage = 20 years.

(6) Proportion of first marriages dissolved by death of wife = $\frac{3}{8}$.

Proportion of first marriages dissolved by death of husband = $\frac{5}{8}$.

(7) Proportion of widowers re-marrying = $\frac{1}{3}$; their average age at marriage being 52, and average age of second wife being 47.

As an example of the method followed in applying these data I give, in a slightly condensed form, the calculations as originally made by Mr. Cleghorn. They were based on Carlisle 4 per cent.:—

(1) Probability of first marriage = $\frac{l_{30}}{l_{24}} \times \frac{5}{6} = \frac{5642}{5921} \times \frac{5}{6} = \cdot 7941$.

(2) $v^6 = \cdot 7903$.

(3) $a_{25} - a_{30,\,25} = 3 \cdot 306$.

Hence value of Annuity of £1 to the Widow of a first marriage is $\cdot 7941 \times \cdot 7903 \times £3 \cdot 306$, ... = £2·0748

(4) Probability of first marriage [see (1)] = ·7941.

(5) Probability of husband being the survivor = $\frac{3}{8}$; and of his re-marrying = $\frac{1}{3}$; combined probability being $\frac{3}{8} \times \frac{1}{3} = \cdot 125$.

(6) Probability at age 24 of marrying twice is therefore $\cdot 7941 \times \cdot 125 = \cdot 0992625$.

(7) $v^{28} = \cdot 3335$ [28 = 52 − 24].

(8) $a_{47} - a_{22,\,47} = 3{\cdot}597$.
Hence value of Annuity of £1 to the Widow of a second marriage is ·0992625 × ·3335 × £3·597, ... = 0·1191

Value of Annuity of £1 to the Widows of first and second marriages = £2·0748 + £0·1191 . . . . . = £2·1939

If the Annuity be £100, and the Contributions be by annual payments in advance, the amount of such Contributions will be

$$\frac{2{\cdot}1939 \times £100}{1 + a_{24}} = \frac{£219{\cdot}39}{18{\cdot}801} = £11{\cdot}66906.$$

I need not weary you by going over the obvious variations of the calculations to suit schemes where a fixed entry-money in addition to the annual contribution, or a fixed marriage-tax, or both, were intended to be charged.

You will observe that the calculations are worked out on the assumption that every entrant will join at the standard age, that those who marry will all do so at the standard age at marriage, that the wife will in each case be exactly five years younger than the husband, and so on,—conditions which, of course, could not be expected to actually occur in the experience of the Fund. The deviations from the standards were, however, provided for by imposing compensating or equalising taxes in respect of age at entry being higher than the standard age, or in respect of the difference between the ages of husband and wife being greater than the standard of five years.

The above method, although rough and imperfect, was the best plan available when the principal existing Funds were started, as until a comparatively recent date, no statistics had been collected showing the actual proportions marrying at each age, with the individual ages of the wives at date of marriage.

The earliest attempt to improve upon this method by drawing up a table of the marriages at each age, and bringing out, for each age, the total probability of marriage occurring thereafter, was made by Mr. Cleghorn, and was first given to the public in his treatise on Widows' Schemes published in 1833. It is interesting both as an example of the clever and judicious use of extremely meagre facts, and also as having, for upwards of thirty years, formed the only existing table of probabilities of marriage.

The table is as follows:—

Mr. Cleghorn's Table of the Probability of Marriage according to the experience of the Ministers and Professors of Scotland.

1	2	3	4	5	6	7
Age.	Number who complete that age.	Number who marry.			Number of Bachelors in Col. 2.	Probability of Marriage after each age.
		At each age.	At and before each age.	After each age.		
24	100	0	0	83·5	100	·8350
25	99·29	1	1	82·5	98	·8315
26	98·56	3	4	79·5	94	·8277
27	97·84	3	7	76·5	91	·8235
28	97·08	9	16	67·5	81·5	·8188
29	96·23	10	26	57·5	70·67	·8136
30	95·29	12·25	38·25	45·25	57·79	·7830
31	94·33	6·5	44·75	38·75	50·74	·7637
32	93·36	5·25	50	33·5	45	·7444
33	92·42	6	56	27·5	38·57	·7130
34	91·49	5	61	22·5	33·21	·6775
35	90·56	5	66	17·5	27·90	·6272
36	89·63	2	68	15·5	25·62	·6050
37	88·68	3·5	71·5	12	21·87	·5487
38	87·72	2	73·5	10	19·64	·5092
39	86·74	0·5	74	9·5	18·92	·5021
40	85·71	2	76	7·5	16·71	·4488
41	84·60	0·5	76·5	7	16	·4375
42	83·43	0·5	77	6·5	15·28	·4254
43	82·23	0·5	77·5	6	14·56	·4121
44	81·03	*	*	*	*	*
45	79·83	*	*	*	*	*
46	78·65	0·5	78	5·5	13·43	·4095
47	77·49	0·5	78·5	5	12·74	·3925
48	76·36	1	79·5	4	11·56	·3460
49	75·29	*	*	*	*	*
50	74·26	0·5	80	3·5	10·75	·3256
51	73·27	0·5	80·5	3	10·11	·2967
52	72·22	0·5	81	2·5	9·47	·2640
53	71·12	1·5	82·5	1	7·84	·1276
*	*	*	*	*	*	*
60	61·53	1	83·5	...	5·8	..

NOTE.—The asterisk denotes that there were no marriages at these ages, or between the preceding and following ages.

In preparing this table Mr. Cleghorn had no information as to the ages of the contributors or their wives. All that he had to go upon was two lists of members, one hundred in each list, taken from the books of the Fund as they entered, without omission or selection, the one list beginning in 1749 and ending in 1753, and the other beginning in 1760 and ending in 1763. These lists gave the year of admission and the status, married or single, at entry, and they indicated the number of marriages occurring in

(8) $a_{47} - a_{22,47} = 3{\cdot}597$.
Hence value of Annuity of £1 to the Widow of a second marriage is ·0992625 × ·3335 × £3·597, ... = 0·1191

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The table is as follows:—

whatever its precise character—as an assurance on the life which has to die before the benefit is entered upon. Under this plan, for instance, it is unnecessary, in the case of Annuities to Widows of contributors who as yet are bachelors, to inquire into rates of marriage, and into the average age of wife, and the probability of her survivance, or of her death, and of the re-marriage of her husband; all that is requisite being merely to find the probability that at his death the contributor will leave a widow, which is a much simpler question.

The idea of treating a reversionary annuity as an assurance on a failing life was perhaps not altogether a new one. I believe that vague references to it are to be found in some of the older authors. The earliest distinct statement on the point that I have seen occurs in Mr. Woolhouse's paper on an Improved Theory of Annuities and Assurances (*Journal of the Institute*, vol. xv. p. 113); but Mr. Ralph Price Hardy (to whom the Actuarial profession is indebted for many ingenious suggestions) was probably the first to employ such a plan in a valuation, he having used a method of the kind about twenty years ago in connection with a report which, unfortunately, I have not been able to lay my hands on. Mr. Meikle also most successfully employed a similar method in 1875 in connection with the Ministers' Widows' Fund. Mr. George King used the principle largely, with results which are entirely satisfactory, in his paper on the Numerical Calculation of the Values of Complex Benefits, by means of Formulas of Approximate Summation (*Journal*, vol. xxvi. p. 276), and which has been embodied in a much extended form in the Text-Book of the Institute of Actuaries Mr. King applied the same principle to provision for children in his paper on Family Annuities (*Journal*, vol. xxx. p. 291), and at the close of that paper he showed how the formula might be adapted to the case of Annuities to Widows. He also, in the last-mentioned paper, gave Tables derived from the English censuses showing the probability of a man at the time of his death being a bachelor, a husband, or a widower; with some very interesting information regarding the number of children left by a married man, from unique statistics obtained from New Zealand. The two valuable papers by Mr. King are deserving of the most careful study. I learn that both of them, and also the Text-Book, were published before Mr. King had heard of the previous reports by Mr. Hardy and Mr. Meikle, in which similar formulas were employed, but in a less fully-developed form.

In 1879 Dr. Sprague submitted to the Institute of Actuaries a paper "On the Construction of a Combined Marriage and Mortality Table, from Observations made as to the Rates of Marriage and Mortality among any Body of Men"; and he

illustrated this paper by various tables calculated from the experience of the British Peerage families. In 1890 he followed this up by another paper dealing with the same subject, in which thirteen principal tables were given. It is, of course, quite unnecessary for me to say that these papers are characterised by the qualities for which their author is so eminently distinguished. They are, in fact, all that could be wished for, excepting, perhaps, in respect of the tables being based upon the experience of the Peerage families, which may operate against their being generally used in the valuations of Widows' Funds where the members belong to the middle class of society.

The various reports on the Indian Military and Civil Funds, which contain a great deal of valuable information, are well worthy the attention of students; and I would especially direct attention to the truly great jubilee report of 1858 on the Madras Military Fund, by Mr. Samuel Brown and Mr. Peter Hardy, assisted by Colonel J. T. Smith, giving the experience of that Fund for a period of fifty years. The preparation of that report occupied nearly five years, but the labour was well bestowed, the report being a lasting monument to the industry, skill, and patience of its framers. The problems which the Actuaries had to deal with were of great variety and complexity. The questions of promotion and retirement or withdrawal affected the contributions, which were liable to increase on promotion and to diminution on retirement. The annuities also were dependent on the rank of the contributor at the date of his death. And, besides numerous minor points falling to be investigated, there were the questions of the probabilities of marriage, the relative ages of husband and wife, the probabilities of the birth of children, and of their being male or female; also the relative rates of mortality in India and Britain, and the separate rates of mortality of males and females. In the case of such a Fund presenting so many special features, there could be no doubt as to the necessity for conducting the valuations by means of Tables based on the actual experience of the Fund.

I would also strongly recommend to students the careful perusal of Mr. Meikle's many valuable reports on Widows' Funds, especially those on the Ministers' Widows' Fund of 1875 and 1891.

In the case of some Funds the marriage-rate and relative ages of husband and wife have seemed to follow a special law applicable to the particular profession or employment with which the fund is connected; while the mortality appears to follow a general law, and corresponds pretty closely with the Carlisle or the Institute of Actuaries H^M Table, in the case of members and their wives, and with the Government Annuitants' (Female) Table in the case of widows. In such instances a sufficiently good and safe table

for valuation purposes has sometimes been framed by combining the probabilities of marriage and ages of husband and wife, derived from the experience of the Fund, with some well-known mortality table or tables. In this way any irregularities due to paucity of numbers are excluded from the mortality elements in the calculations.

An excellent example of a Table of the kind is the one calculated by Mr. John Lamb, F.F.A., in connection with Mr. Gillies-Smith's report of 1879, on the Widows' Fund of the Writers to the Signet, a copy of which will be found in the Library of the Faculty of Actuaries.

The following Tables were calculated by me on this plan in 1871, in connection with a Bank Widows' Fund of 63 years standing, which I investigated about that time. The mortality of bachelors was taken from the Carlisle Table; that of husbands, wives, and widows was taken from the Government Annuitants' Table for male and female lives; the ages of the wives and the probability of marriage of bachelors being taken from the experience of the Fund, supplemented at the older ages from Huie's Tables applicable to Ministers and Schoolmasters.

Present Value of £1 *payable on the* FIRST *Marriage of a Member at present a Bachelor.* (*Interest* 4 *per cent.*)

Age.	Value.	Age.	Value.
24	·493	47	·223
25	·497	48	·214
26	·500	49	·203
27	·499	50	·191
28	·500	51	·179
29	·492	52	·167
30	·485	53	·154
31	·476	54	·141
32	·457	55	·128
33	·438	56	·113
34	·425	57	·100
35	·410	58	·082
36	·397	59	·070
37	·379	60	·056
38	·364	61	·046
39	·342	62	·036
40	·327	63	·026
41	·307	64	·019
42	·290	65	·010
43	·274	66	·005
44	·260	67	·004
45	·248	68	·002
46	·235	69	·000

Present Value of Annuity of £1 to the Widow left from the FIRST *Marriage of a Member at present a Bachelor.*

(*Interest 4 per cent.*)

Age.	Value.	Age.	Value.
24	2·24	47	1·13
25	1·78	48	1·14
26	1·70	49	1·12
27	1·78	50	1·09
28	1·83	51	1·07
29	1·87	52	1·03
30	1·86	53	·98
31	1·85	54	·93
32	1·74	55	·87
33	1·82	56	·79
34	1·79	57	·71
35	1·76	58	·61
36	1·57	59	·53
37	1·91	60	·45
38	1·33	61	·39
39	1·56	62	·30
40	1·36	63	·23
41	1·46	64	·17
42	1·00	65	·10
43	1·00	66	·05
44	1·17	67	·04
45	1·15	68	·02
46	1·48	69	·00

Some ten years later it happened that I was employed to investigate another Bank Fund, in which the membership had for a long period been optional, but had latterly been made compulsory. As in these circumstances the past records of the Fund did not afford reliable data to go upon in the future, I was led to form the idea of collecting the statistics of the marriage-rate and mortality experienced by the other three Scotch Bank Funds, with the view of combining this with what I had got out in the case of the first Bank Fund which I had investigated. Accordingly, I applied to the Committees and Officers of these Funds, and they courteously afforded me the opportunity of extracting on cards the mortality and marriage statistics of the Funds. I took out the marriage-rate first, and obtained the following figures, which included these which I had previously got out for the first Fund.

UNADJUSTED PROBABILITY OF MARRIAGE IN A YEAR deduced from the experience of Four Bank Funds, the data in three cases being brought up to 1882, and in the fourth case to 1871.

(1) Age.	(2) No. of Bachelors attaining the Age.	(3) No. of Marriages before attaining the next higher Age.	(4) Probability of Marriage in a year.	(5) Total Ages of Wives at date of Marriage.	(6) Average Age of each Wife.
16	14·5	0	·000	0	0
17	53·5	0	·000	0	0
18	155·0	0	000	0	0
19	295·5	0	·000	0	0
20	431·0	2	·005	40	20
21	568·0	2	·004	47	24
22	676·0	4	·006	97	24
23	738·5	12	·016	299	25
24	766·0	20	·026	491	25
25	776·0	30	·038	667	22
26	757·0	34	·045	805	24
27	731·5	37	·056	900	24
28	690·0	39	·057	990	25
29	643·5	49	·076	1239	25
30	585·0	36	·061	941	26
31	530·0	35	·066	928	27
32	475·0	30	·061	750	25
33	423·5	32	·075	815	26
34	369·0	20	·051	535	27
35	326·5	24	·073	592	25
36	304·5	17	·056	465	27
37	257·0	11	·043	297	27
38	243·5	17	·070	474	28
39	218·0	22	·101	626	29
40	184·5	8	·043	241	30
41	169·5	12	·071	330	28
42	145·0	6	·041	187	31
43	125·5	11	·088	325	29
44	106·0	2	·019	64	32
45	100·0	4	·040	124	31
46	87·5	5	·057	138	28
47	79·0	2	·025	40	20
48	68·5	2	·029	51	26
49	63·5	1	·016	35	35
50	62·0	3	·048	102	34
51	53·5	2	·037	57	29
52	47·5	2	·042	63	32
53	41·5	0	·000	0	0
54	37·0	0	·000	0	0
55	33·0	0	·000	0	0
56	32·0	0	·000	0	0
57	30·5	1	·033	38	38
58	27·5	1	·036	48	48
59	25·0	0	·000	0	0
60	22·0	0	·000	0	0
61	19·5	0	·000	0	0
62	19·0	1	·052	41	41
63	17·5	0	·000	0	0
64	16·0	0	·000	0	0
65	14·5	1	·070	20	20

RESULTS in preceding Table grouped quinquennially.

(1)	(2)	(3)	(4)	(5)	(6)
Ages.	No. of Bachelors attaining the Ages.	No. of Marriages before attaining next higher Age.	Probability of Marriage in a Year.	Total Ages of Wives at date of Marriage.	Average Age of each Wife.
16-20	949·5	2	·002	40	20
21-25	3524·5	68	·019	1601	24
26-30	3407·0	195	·057	4875	25
31-35	2124·0	141	·066	3620	26
36-40	1207·5	75	·062	2103	28
41-45	646·0	35	·054	1030	29
46-50	360·5	13	·036	366	28
51-55	212·5	4	·019	120	30
56-60	137·0	2	·015	86	43
61-65	86·5	2	·023	61	31

After carefully considering these results, I came to the conclusion that they would scarcely afford a satisfactory basis for the construction of marriage tables, and I therefore did not go further with the matter. There can be no doubt, however, that the records of the five important Widows' Schemes connected with the principal Scotch Banks, are now sufficiently extensive to afford a basis for framing combined marriage and mortality tables; and I am very glad to learn that the matter is in the competent hands of my friend Mr. Hewat, and that there is a prospect of tables being published by him, at an early date, based on the experience of these Funds. In the case of the oldest Fund he will have twenty-three years' additional experience beyond that which I had. In the case of three other Funds he will have twelve years' additional experience, and he will be able to include a considerable amount of material from the fifth Fund, which has now had some seventeen years' experience as a compulsory Fund.

Having put before you these somewhat rambling historical notes, I shall now, with apologies to the senior members who have been kind enough to be present, offer a few practical suggestions to these younger members of the profession who have not as yet had experience in the investigation of such Funds.

In taking up a piece of work of this kind it is of importance to study at the outset the Deed of Constitution, Acts of Parliament (if any), and the present regulations of the Fund; also to weigh carefully the language of the various provisions, and to thoroughly understand the system on which the Fund is administered. In investigating the mortality, that of contributors, of wives, and of widows, should be separately taken out, and in the

case of a large Fund it will be for consideration whether the mortality of contributors should not be subdivided so as to show separately that of bachelors, husbands, and widowers. In investigating the marriage-rate, second and third marriages must of course be excluded in the first instance, unless it be proposed to adopt in the valuation what may be called the collective method as already alluded to. The average age of the wife will also be ascertained in relation to the age of the husband at date of marriage. The proportion of second marriages will be investigated; and although it may not be proposed to adopt the collective method in the valuation then about to be made, it will be desirable to keep a record of the amount and class of liability brought on the Fund by each death. The question of the rate of interest which the funds may be expected to yield in the future is of great importance, and, in considering it, the special circumstances of the Fund, and the powers of the trustees as regards investment, will have to be kept in view. If there are no special circumstances, the probability is that the rate of interest earned will be rather lower than that obtained on the funds of a life assurance company, the reason for this being that the power of the trustees of a Widows' Fund are likely to be more restricted than those of the directors of a life assurance company. Accordingly, I should be inclined to recommend, as a general rule, that for the present valuations of Widow's Funds should be based on 3 per cent. interest. But in the case of the Bank schemes a special rate of interest has sometimes been allowed by the directors of the Bank for the purpose of benefiting the fund; and in such a case this arrangement, if of a permanent character, would have to be kept in view in fixing the basis of valuation. It is also conceivable that, in the case of a stationary or decreasing fund, invested mainly in debenture stocks purchased many years ago to yield $4\frac{1}{4}$ or $4\frac{1}{2}$ per cent., and kept in the books at their cost price, it might be prudent to value at a rate even exceeding 4 per cent.; but in any case of this kind it would be proper on the part of the Actuary to require a special direction from the trustees or committee of management as to the rate of interest to be employed. It will be the duty of the trustees, or committee, or of their auditor, to certify to the Actuary what valuation can safely be placed on the investments. The question of the provision to be made for expenses is one of some importance. In the case of a life assurance society, the expenses connected with any individual contract usually cease immediately after the death of the contributor; but in the case of the schemes of which we have been speaking, the expenses continue during the survivance of the widow, and sometimes go on even after her death, where there is a provision for the continuance of the annuity in whole or in part

during the minority of the children. In these circumstances, it is clear that to limit the provision for future expenses to the duration of the lifetime of the contributor, by simply reserving a percentage on the value of his future contributions, would not be sufficient; while to reserve the value of a perpetual annuity equal to the estimated annual expenses would be more than sufficient. The mode sometimes adopted of providing for expenses out of the surplus interest beyond the rate on which the valuation is based, is generally unsatisfactory, and is apt to lead to disappointment owing to the tendency now prevailing to a gradual fall in the rate of interest. It may be, however, that there are some steady sources of available income, such as marriage-taxes, profit on withdrawals, etc., which may have been left unvalued in the past, and which are available for meeting the expenses in whole or part. Where such is the case, it will be for the Actuary to consider to what extent this will justify him in restricting or abandoning the direct provision for expenses, which in ordinary circumstances would be necessary.

Having arrived at a conclusion regarding the Mortality and Marriage Tables which most nearly represent the experience of the Fund, the Actuary, before proceeding with the valuation, should test the sufficiency of the rates of contribution to meet the benefits and expenses. In the case of an old Fund where (through the self-denial of the original contributors, or through extraneous aid) the annuity has been largely increased beyond its original amount, without any corresponding increase in the contributions, the Actuary will probably find a very great discrepancy between the value of the contributions and the value of the benefits—the former being probably less than two-thirds of the latter. In such a state of matters the introduction of each new member may be regarded as representing a loss to the Fund of the amount of the discrepancy; and in order to avoid danger in the future the Actuary will probably think it right to set aside in his valuation a capital sum representing the value, as a perpetuity of the future annual loss to be apprehended from this source. Or the matter may be dealt with in another way. There may have been in the past a separate Surplus Fund maintained, consisting of the sums received from extraneous sources, and by allocating to each contributor an annuity for his life representing his proportion of the annual interest at the basis rate on this Surplus Fund, it may happen that an equality can be arrived at between the value of contributions and the value of the benefits, and if this be so, and the membership is stationary, no further provision for loss by introduction of new members is necessary, unless the question comes up of making an addition to the existing Annuities.

If the Fund is a small one, it may be expedient to make an

addition to the values brought out, to cover possible deviations from the average due to paucity of numbers.

On the completion of the valuation, if a surplus is shown, the Actuary will have to consider as to the proportion thereof to be divided; and in making a recommendation on this point, he will keep in view the sources from which the surplus has been derived. In regard to the mode of allocating the divisible surplus, he will of course have to be guided strictly by the constitution and rules. If, unfortunately, there should be a deficiency, the Actuary will have to satisfy himself as to the cause thereof, and if any discretion is permitted by the rules, he will have to consider with care as to the best mode of putting the matter right. To put off the evil day by neglecting to deal with difficulties at the proper time (which is immediately on their discovery) would be a weak and dishonest course, and would prove most damaging to the Actuary's reputation. The questions of surrender values (if any be allowed) and of the extra charges (if any) which ought to be made for residence abroad will engage the attention of the Actuary. It is difficult to lay down general rules for such cases, the conditions of the individual schemes being so different; but this suggestion may be made, that, in regard to these matters, the Actuary ought not to apply off-hand the rules on which he may have been accustomed to act in the case of life assurance business, but he must think out the questions anew for himself in connection with the terms of the individual contracts.

Perhaps it may not be out of place for me to add a hint as to the wording of the Valuation Report. It should be so expressed as to convey to any other Actuary, who may be subsequently called in, a clear understanding of the processes which have been employed; but, at the same time, it should as far as possible be free from technical expressions, and should contain such explanations as to ensure its being followed by the committee of management and the contributors, for whom it is primarily intended.

I am aware that these suggestions are meagre and imperfect; but I do not know that it would serve any good purpose to occupy your time with further details. I might say generally, however that, in the case of Widows' Funds, as in the case of Life Assurance Companies, it is the duty of the Actuary to collect, arrange, and select his facts with care and accuracy, and to apply these facts, with intelligence, impartiality, and judgment, in framing his estimates as to the future. The proper discharge of such duties and responsibilities necessitates attainments not inferior to those required in other professions; and in this connection, I may remind you of the enumeration of the prime qualifications of the physician, as given by Dr. John Brown in *Horæ*

Subsecivæ. He summed these up in the four words, CAPAX, PERSPICAX, SAGAX, EFFICAX, and gave the following interpretation:—*Capax*—there must be room (in the brain) to receive, arrange, and keep knowledge; *Perspicax*—the senses and perceptions must be keen, accurate, and immediate to bring in materials from all sensible things; *Sagax*—there must be a central power of knowing what is what, and what it is worth; of choosing and rejecting, of judging; and, finally, *Efficax*—there must be the will and the way to turn all the other three (capacity, perspicacity, sagacity) to account in the performance of the thing in hand, and thus to render back to the outer world, in a new and useful form, what you had received from it.

Gentlemen, I venture to think that these four words, which so admirably sum up the qualifications of the physician, might with equal propriety be employed to represent those of the Actuary. Indeed, it may be said to be the main object of the Institute of Actuaries, and of the Faculty of Actuaries, and in its own sphere of this Society also, to secure that the qualifications of the skilled Actuary shall be capable of being truly described by the words *Capax, Perspicax, Sagax, Efficax.*

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Life Office Investments

Retrospect and Outlook.

(*Read before the Actuarial Society of Edinburgh, 7th March* 1895.)

On looking over the list of interesting and varied subjects which have been submitted for consideration and discussion in past years to this Society, in the enjoyment of which I have been a constant participant, I find that it is fully sixteen years since I appeared before you in the position which I am glad to occupy again to-night as the reader of a paper.

The subject then selected related to the distribution of population in the United Kingdom, and discussed how each district could most effectively be occupied by branches and agencies, so as to bring the beneficent system of Life Assurance within the reach of every one. Since that paper was read, it has been my good fortune to extend my experience from the superintendence of the outside organisation of a great office to other departments of the business of Life Assurance, and especially to give the closest attention in a variety of connections to that most important but most difficult subject, the investment of moneys at the highest rate of interest consistent with the safety of the principal.

When, therefore, the energetic Secretary of our Society informed me that the Committee, owing to the length of time since a paper on the subject of Investments had been given, and having considered the appropriateness of such a paper at the present time, were anxious for some one to undertake the duty, I felt bound, as a debtor to the Society, to accept service, and to give the desired opportunity of discussing the new conditions which confront us, and so enable us as a Society to "mark time" in regard to one of the leading factors in the prosperity of the business of Life Assurance.

It will not be difficult to marshal before you the statistics which demonstrate that the rate of interest now obtainable on the investments in which the funds of British life offices were mainly invested, a quarter of a century ago, has greatly decreased. I

have been informed by stockbrokers, who have been largely employed by life offices in the investment of their funds, that ten years ago they found it easier to obtain a gilt-edged investment, yielding 4¼ per cent., than they now find it to obtain similar investments yielding 3¼ per cent. Several members of leading firms of Writers to the Signet in Edinburgh have told me that mortgages to yield 3¼ per cent. are now more rare than mortgages with similar margins, yielding 4 to 4½ per cent., were twenty-five years ago. Consols, which at one time shared with land mortgages the premier place in the list of life office investments, have shown a similar decrease in this respect, though not to the same extent. They now yield only £2, 8s. 9d. per cent., against £3, 0s. 2d. per cent. in 1885, and £3, 4s. in 1875. British municipalities obtain their loans for public purposes fully 1 per cent. per annum less than they did twenty-five years ago. Three per cent. debenture stock of some of the leading railways commands a premium of 13 per cent., while thirty years ago these same railways had difficulty in getting money on debenture and debenture stock at 4 and 4½ per cent. Colonial mortgage companies, which less than twenty years ago were glad to issue debentures bearing interest at the rate of 4½ or 5 per cent., now offer from 3½ to 4 per cent. Scotch feu duties, which twenty years ago could be bought for twenty-two and a half years' purchase, now command thirty years' purchase, showing a decrease in the yield of this form of investment of more than 1 per cent. The English banks have reduced their rates to depositors to 10s. per cent. The Scotch banks have reduced their interest on deposit receipts to 1 per cent. During the last ten years the average rate allowed by the Scotch banks to depositors was £2, 1s., and for the previous ten years £2, 8s. 5d. per cent. Such is the trend, a pleasant one enough to the holders of marketable gilt-edged securities at the old rates, who have seen, as the necessary consequence of the growing demand and limited supply, a remarkable rise in the capital value of their investments, but presenting a dilemma of great difficulty in the investment of new accumulations to offices, which are by their constitution limited in their powers of investment. The decrease in the rate of interest earned by the life offices has been less than the ratio of decrease quoted in the above examples during the same period, because investments, formerly made at lower prices than now prevail, have not been written up to the present market value, and some offices, which were not hampered by the conditions of their constitution, have sought new and more profitable fields of investment. An adaptation to the times consequent on the new conditions is that many offices have found it necessary to apply for extended powers of investment. I propose to refer later on to this subject, and also to the no less remarkable move-

ment on the part of an equal number of offices which have found it advisable, during the last decade, to alter to a lower rate the rate of interest used as the basis of valuation.

No one cause can be assigned as the reason for the fall which has taken place in the rate of interest. Telegraphic communication and more rapid transport have enabled the commerce of the world to be carried on with a much diminished capital. The growth of wealth in Great Britain continuing, though to a diminished extent, all through the years of agricultural and commercial depression, is also a considerable factor. The decrease during the last quarter of a century in the value of agricultural land throughout the United Kingdom by fully 40 per cent. is in itself a severe shrinkage in the field, which up to the beginning of that period was first favourite for the investment of life funds. The enormous increase in the money under trust, which can only find investment in first-class securities, is another cause. The statistics of the growth of trust funds cannot be so accurately tabulated as the increase in the funds of the life offices and other institutions which husband the thrift of the nation. Statisticians, who have given the subject of the increase of the wealth of this country much attention, agree in computing that at the present time it exceeds the sum of £10,000,000,000. We know that 2 per cent. of the population die yearly, so that on the average one fiftieth part of this vast sum, or £200,000,000, will each year pay toll to the Revenue in the shape of probate or succession duty, and a large proportion of this £200,000,000 will pass each year into the hands of trustees. This of itself will account to a considerable extent for the absorption at constantly appreciating prices of the first-class British securities which formerly afforded a profitable outlet to the life offices for the investment of their funds.

Mr. Deuchar, in his admirable and much quoted inaugural address delivered in 1887 on 'The Progress of Life Assurance Business in the United Kingdom during the Last Fifty Years,' estimates, from carefully compiled statistics, that the life assurance funds in 1837 of the eighty-two life offices which were then in existence amounted to £27,720,272, and the life premium income to £3,070,752. At the present time the life funds amount to £181,692,907, and the premium income is £16,573,686. The former has increased nearly sevenfold, the latter more than fivefold. But embracing only the period since returns were compulsorily rendered under the Life Assurance Companies Act, 1870, we observe an increase of phenomenal amount. The following table does not include the funds of industrial companies, but the paid-up capitals of the purely life companies are included :

Year.	Number of Offices.	Life Funds.
1870	94	£ 92,574,636
1875	93	107,240,193
1880	92	119,338,486
1885	95	140,750,808
1886	96	144,649,252
1887	94	147,933,581
1888	96	151,275,956
1889	96	155,208,202
1890	95	160,172,605
1891	91	165,809,134
1892	89	171,547,169
1893	90	176,199,924
1894	90	181,692,907

You will observe that the increases were at the beginning of this period less than £3,000,000 yearly, and in the later period they average over £5,000,000 yearly.

But even more remarkable than this augmentation in the funds of the life offices has been the ratio of increase in the funds of the industrial companies. In 1884 the total funds of these offices amounted to £2,273,907. They now possess £13,298,000, showing in ten years an increase of £11,024,093.

It should be of special interest to most of us who are connected with Scottish life offices to observe to what extent and in what proportion Scottish offices have participated in this remarkable increase. Quoting again from Mr. Deuchar's inaugural address, we find that in 1837, when our good Queen began her auspicious reign, the total life funds held by twelve Scottish offices were £1,279,943, and the premium income was only £272,269. The funds have increased almost fiftyfold, and now amount to £60,536,975. The premium income has increased eighteenfold, and now amounts to £4,985,887. In 1837, the percentage of the life funds of the Scottish offices to the life funds of all the British life offices was 4·62. The ratio is now above 33 per cent.

The following table shows the progressive increase of the funds of the Scottish offices since the year 1871 :—

Year.	Number of Offices.	Life Funds.
1871	16	£22,622,703
1875	16	27,212,384
1880	16	34,169,178
1885	17	42,435,053
1889	18	49,585,542
1890	17	52,061,543
1891	16	54,181,325
1892	16	56,152,396
1893	16	58,277,615
1894	16	60,536,975

It is further interesting to an Edinburgh society to know that of this last sum no less than £51,733,703 is held by life companies having their head offices in Edinburgh. Our good city is famous for many things, and conspicuous among these for its banks and insurance companies, which between them hold and administer funds amounting to £145,210,130. Is it any wonder that the jaded members of these two great professions, having such cares and responsibilities as these large figures imply, should unite in seeking for themselves that refreshment to body and mind which they so much require in the breezy golf links of Duddingston?

It must not be thought that these life funds are held for behoof of widows and orphans and other beneficiaries resident in Scotland. Probably less than one-third of it will be disbursed on this side the border. Scottish offices are popular—shall I say deservedly popular—throughout England and Ireland, and there are men in every country in the world who rely with absolute confidence on the prudence and caution with which Scottish offices are managed, and on this ample provision laid up for the future needs of those who are dear to them. There is every reason to believe that the increase of the funds of the Scottish offices will be equally progressive in the future, and for this reason I would emphasise the importance of the younger members of the Society making the investment of money a subject of careful study and observation. The mere increase of the funds will necessitate more hands, or rather more brains, being engaged to see after their safe investment and custody; and further, the very fact of these constantly increasing accumulations will operate to burst the old limits and necessitate thought and research being constantly applied to discover new forms of investment, yielding safety in the first instance, and, in the second, a minimum of, let us say for the present, 3½ or 4 per cent.

Rates of Interest.

The next point we have to consider is the rate of interest which these large and rapidly increasing funds have yielded, and are now yielding. I have calculated the rates given below, with the exception of the first three, from the summary of the life assurance and annuity revenue accounts compiled by the Board of Trade from the returns made to them by the life assurance companies; and in doing so I have deducted half the interest received during the year from the mean of the funds at the beginning and end of the year, a method of calculating the rate originally proposed by Mr. G. F. Hardy, in a paper read before this Society about four years ago, in which he showed that it gives the actual rate earned by the funds more accurately than the usual method of taking the

mean of the funds. The funds given in this summary, I may mention, comprise the whole of the life and annuity funds, and in addition the capital of companies whose business is limited to life assurance only; the interest entered in one column is less income-tax, and in the other, before income-tax has been deducted. The following are the rates I obtained in this way:—

Average Rates of Interest realised by Principal British Life Offices.

Deduced from Government Returns.

Year.	Number of Companies.	Average Rate of Interest (less tax).	Income-Tax.		Estimated Interest before Deduction of Tax.
			Rate.	Amount (say).	
1870	94*	£4 9 5	5d.	1s. 10d.	£4 11 3
1875	94*	4 10 5	2d.	0s. 9d.	4 11 2
1880	92*	4 7 3	6d.	2s. 3d.	4 9 6
1885	96	4 4 8	6d.	2s. 2d.	4 6 10
1886	94	4 4 5	8d.	2s. 11d.	4 7 4
1887	96	4 2 5	8d.	2s. 6d.	4 5 3
1888	96	4 2 2	7d.	2s. 5d.	4 4 7
1889	95	4 1 11	6d.	2s. 1d.	4 4 0
1890	91	4 1 11	6d.	2s. 1d.	4 4 0
1891	89	4 1 9	6d.	2s. 1d.	4 3 10
1892	90	3 17 7	6d.	2s. 0d.	3 19 7
1893	90	4 2 2	6d.	2s. 1d.	4 4 3

* A few of the very small companies whose returns were incomplete have been excluded from these years. The result, however, is not affected by this.

It will be observed that there has been an almost steady fall in the rate of interest during the twenty-five years under review, the difference between the first and last rates being about three-eighths per cent. It will also be observed that there is a marked fall in the second last year, succeeded by a sharp rise in the next; and, as there was nothing in the normal condition of affairs to account for this extraordinary feature, I investigated the point, and found it was due to a number of offices returning accounts for broken periods, chiefly with the view of making their financial year coincide with the calendar year. The effect of this is, that if accounts are returned for a period extending over six months, the interest received during that time is treated as if it related to a whole year. In 1892 no less than six offices, some of them with large funds, returned accounts for periods varying from five to ten months. This is a point to which I do not think attention has been directed before; and if allowance is made for it, the rates for the last three years are as follows:—

It is further interesting to an Edinburgh society to know that this last sum no less than £51,733,703 is held by life companies ving their head offices in Edinburgh. Our good city is famous : many things, and conspicuous among these for its banks and surance companies, which between them hold and administer ıds amounting to £145,210,130. Is it any wonder that the led members of these two great professions, having such cares d responsibilities as these large figures imply, should unite in eking for themselves that refreshment to body and mind which ey so much require in the breezy golf links of Duddingston?

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one from 4 per cent. to 3¼ per cent., and one from 4 per cent. to 3 per cent. It will be seen, therefore, that one office has reduced the rate of interest by 1 per cent., one by ¾ per cent., five by ½ per cent., and one by ¼ per cent. Of the remaining twenty-six offices, two have reduced the rate from 3 per cent. to 2½ per cent., one from 3½ per cent. to 3¼ per cent., three from 3½ per cent. to 3 per cent., five from 4 per cent. to 3½ per cent., and one from 4 per cent. to 3 per cent. It will be seen, therefore, that one office has reduced the rate by 1 per cent., ten by ½ per cent., and one by ¼ per cent.

It is clear, therefore, that a large number of offices have made ample provision for the fall which has taken place in the rate of interest, and that their profit from this source is unimpaired.

Extended Powers of Investment.

We have now to consider the movement which has taken place, on the part of many British life offices, to increase their powers of investment in consequence of the lowering of the rate of interest. Both in England and Scotland there has been noble service done to the nation in obtaining Acts for the enlarging of the powers of investment of trustees by successive Lord Chancellors and Lord Advocates, and by none more than the distinguished men who at present adorn these high offices. What they have done for the nation the officials of life offices have been obliged to do for their lesser kingdoms. For that portion of their funds invested in fixed or irredeemable investments in former years, and which have not been written up to their now largely appreciated value, there is cause for congratulation; but these old authorised investments, at their enhanced price, are not now available for sums repaid and fresh accumulations. These must be invested at rates which will not only fulfil obligations, but which will produce a profit to the policyholders. It is in such circumstances that a manager earnestly scans his powers of investment, and if he discovers, as has been the case frequently in recent years, that he is excluded by the investment clauses of the constitution of his office from participating in some excellent investment, yielding a good rate, which he knows some of his neighbours not similarly fettered are taking advantage of, he is not likely to remain long quiescent, but takes the first opportunity of bringing the matter before his directors, and they in their turn lose no time in making application to Government for the desired fuller powers. To such applications Parliament has wisely granted a ready assent, subject only to the proviso that a special resolution defining the extent of the powers to be granted to the directors shall be submitted to and approved by the members and shareholders.

Since 1880, one-half of all the British Life Offices of any importance have applied for and have obtained extended limits of investment. Indeed, some offices within that period, feeling the need of a free hand in the evolution that was taking place in the field of British investments, have gone a second time to Parliament on the same errand. The shareholders and policyholders of some companies have granted the fullest powers to their Boards, stipulating only that each investment should receive the sanction of two-thirds or three-fourths or a majority of the directors. There are occasionally restrictions to the extended powers given, such as that the directors may not invest in shares with a liability attached, or may not lend on personal security, or may not invest in foreign securities, but the tendency is in favour of unlimited investing powers.

Mr. George King, in a valuable paper delivered before the Institute of Actuaries in 1891, in discussing the restrictions placed upon insurance companies by the State in America, and in this country by the companies' constitutions, remarks: "In my humble judgment I think that in the deeds of settlement the directors should have unrestricted powers, and much more, therefore, it is my opinion that there should be no rules laid down under this head by Government." This opinion is concurred in by other authorities of high standing.

The following are a few specimens of the more modern investment clauses giving extended powers. That of office No. 1 has been familiar to me for some years, and for completeness, I think, leaves little to be desired.

Office No. 1.—They [the Directors] may invest the capital and other funds of the company in such securities, whether in the United Kingdom or elsewhere, and whether Government, real or personal, as they think advisable; and they may from time to time vary such securities, and may advance money to policyholders on the security of their policies with or without additional security; always provided that the funds of the company be not expended in the purchase of its own shares, or of any shares involving any liability for calls.

Office No. 2.—The moneys of the company, so far as they are not required to satisfy the immediate claims and expenses of the company, may be laid out and invested in the purchase or on the security of any investment in the United Kingdom or elsewhere, which shall be made pursuant to a resolution passed and approved by not less than five directors present. And the company shall have power from time to time to sell, vary, and transpose any of such investments.

Office No. 3.—The funds of the Association shall from time to time be invested in purchase or on security of real or leasehold

property, or in such stocks, funds, shares, securities, properties, c other investments, as a majority of at least three-fourths of th whole number of directors shall from time to time determine provided that no investment shall be made in any security nc fully called up, or which involves any liability beyond the amou intended to be paid or advanced.

Office No. 4.—In or upon any investment or security not fallin within any of the classes aforesaid, but which may be approved b a resolution of the directors for the purposes of each particula investment.

Office No. 5.—The directors may invest and accumulate any o the moneys of the company not immediately required for th purposes thereof in any of the investments following, and with th sanction of not less than three-fourths of the directors for the tim being, to be given either generally, or for the investment of an specific moneys at a meeting of the directors specially summone for the purpose in any other investments, and may from time t time vary all or any part of such investments.

Office No. 6.—The moneys of the company, so far as they ar not required to satisfy the immediate claims on and expenses c the company, may be laid out and invested in or upon any securit whatsoever, but subject as herein provided. Provided that th previous consent of not less than six directors present at a Boar shall be required to every investment other than advances on or redemption of policies of the company, or investments in securities in which trustees are for the time being empowered by law to invest trust-money.

Classification of Investments.

I propose now to direct your attention to the nature and extent of the changes which have taken place during the last twenty-five years in the investments of life offices, and for this purpose I submit the following four tables, showing throughout a series of years the actual amounts and the percentages of assets invested in each class of security of all the British life offices, and also of the Scottish life offices apart, for the same years. (See pages 242 to 245.)

A careful study of these figures will give a better conception of the history of life office investments, and the new directions into which investments are tending, than many pages of letterpress. You will see that on several items, while the actual amounts of the moneys invested have greatly increased during the last twenty-three years, the ratio has considerably decreased. This is conspicuously so in the case of the first item, upon which a few remarks may be made.

Since 1880, one-half of all the British Life Offices of any importance have applied for and have obtained extended limits of investment. Indeed, some offices within that period, feeling the need of a free hand in the evolution that was taking place in the field of British investments, have gone a second time to Parliament on the same errand. The shareholders and policyholders of some companies have granted the fullest powers to their Boards, stipulating only that each investment should receive the sanction of two-thirds or three-fourths or a majority of the directors. There are occasionally restrictions to the extended powers given, such as that the directors may not invest in shares with a liability attached, or may not lend on personal security, or may not invest in foreign securities, but the tendency is in favour of unlimited investing powers.

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Office No. 2.—The moneys of the company, so far as they are not required to satisfy the immediate claims and expenses of the company, may be laid out and invested in the purchase or on the security of any investment in the United Kingdom or elsewhere, which shall be made pursuant to a resolution passed and approved by not less than five directors present. And the company shall have power from time to time to sell, vary, and transpose any of such investments.

Office No. 3.—The funds of the Association shall from time to time be invested in purchase or on security of real or leasehold

TABLE *showing the Amount Invested by British Life Offices, including Scottish Offices, in the following Classes of Investments.*

Class of Investment.	1871.	1880.	1885.	1890.	1891.	1892.	1893.	1894.
Mortgages in the United Kingdom . .	50,819,064	65,857,541	73,007,272	71,154,135	74,028,183	73,900,539	73,910,827	73,038,093
,, out of the United Kingdom .	751,482	1,117,510	1,927,070	7,652,133	8,773,406	9,685,316	10,570,093	11,705,106
Loans on Policies	5,269,363	6,738,662	7,998,896	8,914,314	9,217,205	9,523,736	9,754,200	10,270,509
,, Rates and Rent Charges . .	10,194,506	20,169,562	21,323,681	21,391,793	19,401,604	19,383,340	20,369,932	21,420,034
British Government Securities . . .	8,214,559	4,886,533	4,848,447	5,703,832	5,915,374	5,298,096	4,951,175	4,868,072
Indian and Colonial Government Securities	5,255,753	5,865,667	10,700,167	12,757,092	12,695,955	13,469,021	14,265,946	15,654,471
Foreign Government Securities . . .	1,228,494	3,918,401	3,897,809	3,539,651	3,533,849	3,734,407	3,859,107	4,162,339
Debentures and Debenture Stocks . .	10,412,626	11,410,678	12,412,326	18,934,268	21,856,801	22,912,170	24,766,416	27,012,987
Shares and Stocks	3,111,277	6,105,967	10,398,198	12,965,377	12,931,402	13,538,470	13,600,456	14,415,667
Land and House Property and Ground Rents	4,691,432	4,923,755	9,384,463	12,091,861	12,851,277	13,248,100	13,977,961	14,781,487
Life Interests and Reversions . . .	1,689,322	2,659,143	3,214,410	3,533,449	3,480,319	3,736,742	4,071,350	4,150,874
Loans on Personal Security	1,806,924	1,745,490	1,305,355	1,246,277	1,316,908	1,456,968	1,497,918	1,551,254
Agents' Balances and Outstanding Premiums	2,396,136	2,897,995	3,568,799	4,096,640	4,374,699	4,649,722	4,767,155	5,070,923
Outstanding Interest	776,763	1,288,965	1,515,130	1,824,650	1,926,577	1,985,602	2,062,828	2,164,829
Cash, Deposits, Stamps, etc. . . .	2,709,013	2,978,505	4,601,825	8,363,853	8,607,418	9,446,152	8,740,338	7,853,284
Miscellaneous	283,521	2,454,038	699,352	606,382	614,857	645,991	655,464	648,443

MORTGAGES WITHIN THE UNITED KINGDOM.

The amount invested under this head, for all the offices, has increased nearly 50 per cent. since 1871, while the percentage to the total assests has decreased from 46·36 to 33·39 or 12·97 per cent. Since 1891, you will observe, that there has been an actual decrease in the amount so invested.

Directing our attention to the Scottish life offices, we find the actual amount invested under this head has increased by about 70 per cent. since 1871, while the percentage to the total fund has decreased no less than 22·55 since that year, and 28·36 as compared with 1880.

These decreases have been gradual and continuous, and must have been to a considerable extent synchronous with the decrease which has taken place in the value of agricultural land in this country. The decrease in the value of agricultural land has been in greater proportion than the reduction in the rental. During the last quarter of a century the gross assessment under Schedule A, as reported in the published returns for the year ending 5th April 1893, has fallen from about £67,000,000 to slightly under £57,000,000.

The late Mr. William Thomas Thomson, Manager of the Standard Life Assurance Company, in 1854, prepared an interesting diagram showing the rate of interest on first heritable securities in Scotland compared with that on bank accounts current, and with the return on Consols. I have extended the diagram[1] up to the present time, and now submit it to illustrate how completely land mortgages and Government securities, from the very different return which they now yield compared with that yielded during the past three-quarters of the century, have passed out of the range of investments which are suitable for life offices. It would be of considerable interest if it could be known how the amount invested under the above description, amounting to £73,038,093, is distributed under the three following heads:—(1) Mortgages on land, (2) mortgages on house property, and (3) mortgages on trust funds and reversions. The extent to which the decrease has taken place under No. 1 heading—mortgages on land—will be found to be very remarkable, for the double reason that the value of the security has decreased, and that trustees have been willing to lend on this security at lower rates than life offices consider remunerative. The gross rental in the assessment of houses or messuages, in the United Kingdom, under Schedule A, has increased during the last quarter of a century from £85,000,000 to slightly under £145,000,000, as per H.M. Commissioners' last report. It is probable that up to a very recent date there has been a consider-

[1] See Diagram attached.

TABLE *showing the Amounts Invested by Scottish Life Offices only in the following Classes of Investment.*

Class of Investment.	1871.	1880.	1885.	1890.	1891.	1892.	1893.	1894.
Mortgages in the United Kingdom	13,572,892	24,270,829	25,254,023	24,362,939	25,099,587	24,003,579	24,014,889	23,038,620
,, out of the United Kingdom	148,254	347,537	888,240	5,808,377	6,668,791	7,291,082	8,057,303	8,847,282
Loans on Policies	1,683,267	2,269,182	2,668,250	3,140,143	3,248,132	3,377,993	3,424,762	3,570,926
,, Rates and Rent Charges	576,484	1,607,762	2,604,484	3,786,970	3,480,966	4,036,172	4,972,496	6,106,091
British Government Securities	378,509	193,284	748,664	985,979	1,146,699	1,097,810	1,050,549	843,479
Indian and Colonial Government Securities	675,581	1,317,878	3,318,192	3,070,999	3,154,303	3,617,049	3,743,768	4,168,724
Foreign Government Securities	304,868	890,017	963,147	746,834	787,966	778,545	747,983	818,036
Debentures and Debenture Stocks	1,786,391	1,323,851	2,048,490	3,303,658	4,124,013	4,903,026	5,636,794	6,946,093
Shares and Stocks	1,090,575	1,375,195	2,494,909	3,241,199	3,082,842	3,019,883	2,940,603	2,739,757
Land and House Property and Ground Rents	1,478,256	2,379,885	2,979,886	3,380,540	3,472,381	3,545,871	3,685,145	3,786,614
Life Interests and Reversions	265,306	295,624	695,495	910,659	736,838	888,670	900,007	931,486
Loans on Personal Security	354,847	390,662	382,870	272,719	323,899	350,444	402,542	440,407
Agents' Balances and Outstanding Premiums	948,673	1,371,077	1,454,167	1,613,633	1,687,341	1,744,155	1,833,393	2,001,755
Outstanding Interest	187,896	321,865	388,691	594,284	620,370	649,211	666,344	708,259
Cash, Deposits, Stamps, etc.	630,540	740,925	1,511,841	3,929,758	3,899,108	4,355,118	3,814,541	3,320,003
Miscellaneous	32,549	16,406	87,429	21,985	20,467	20,367	17,878	15,565

TABLE *showing the Percentages which the above Amounts bear to the Total Assets.*

Class of Investment.	1871.	1880.	1885.	1890.	1891.	1892.	1893.	1894.
Mortgages in the United Kingdom . .	46·36	45·41	42·74	36·53	36·74	35·77	34·89	33·39
,, out of the United Kingdom .	·68	·77	1·13	3·93	4·35	4·69	4·99	5·35
Loans on Policies	4·81	4·65	4·68	4·58	4·57	4·61	4·60	4·70
,, Rates and Rent Charges . .	9·30	13·91	12·49	10·98	9·63	9·38	9·62	9·79
British Government Securities . . .	7·49	3·37	2·84	2·93	2·93	2·56	2·34	2·23
Indian and Colonial Government Securities	4·79	4·05	6·26	6·55	6·30	6·52	6·74	7·16
Foreign Government Securities . . .	1·12	2·70	2·28	1·82	1·75	1·81	1·82	1·90
Debentures and Debenture Stocks . .	9·50	7·87	7·27	9·72	10·85	11·09	11·69	12·35
Shares and Stocks	2·84	4·21	6·09	6·66	6·42	6·55	6·42	6·59
Land and House Property and Ground Rents	4·28	3·40	5·49	6·21	6·38	6·41	6·60	6·76
Life Interests and Reversions . . .	1·58	1·83	1·88	1·81	1·73	1·81	1·92	1·90
Loans on Personal Security . . .	1·65	1·20	·77	·64	·65	·71	·71	·71
Agents' Balances and Outstanding Premiums	2·15	2·00	2·09	2·10	2·17	2·25	2·25	2·32
Outstanding Interest	·71	·89	·89	·94	·96	·96	·97	·99
Cash, Deposits, Stamps, etc. . . .	2·48	2·05	2·69	4·29	4·27	4·57	4·13	3·59
Miscellaneous	·26	1·69	·41	·31	·30	·31	·31	·30

able increase in the amount of money lent by British offices on this class of property, both freehold and leasehold. The competition of trust funds for loans on freehold security has during the last five years forced down the rate of interest to a point below which they cease to be attractive for life offices. During this winter it is within my own knowledge that numerous loans have been arranged in our own city on house property at 3 per cent., and I have been told that, in one or two exceptional cases, even a lower rate than this has been taken. Loans on life interests and reversions will naturally, owing to the increase in trust-moneys, be an increasing quantity, and further, owing to their not being available for other classes of investors, and frequently bringing new policies to the offices affecting them, will remain to a large extent a speciality, and a favourite one for the investments of life offices. Some of the companies do not state the amount invested under this head separately, but from the 1893 returns the amount reported is £6,117,843, which is nearly six times greater than the amount reported under the same head in 1870.

Mortgages out of the United Kingdom.

It appears to me that it is from the outlet under this heading, which so far has been availed of by only a few of the British Life Offices, that the chief help is likely to come in the struggle to maintain the rate of interest above four per cent. A glance at the foregoing Tables will show that the experiment has already been in operation for some years; and it is satisfactory to be able to record the testimony of those Companies which have taken the lead in the new departure that up to the present time the experiment has been in all respects satisfactory. The country chosen as the chief field of operation and that on a somewhat extensive scale, has been Australia. Two of our Scottish Companies have, during the last ten years, lent on mortgage in Australia a sum not far short of £5,000,000; and, notwithstanding that during that time the country has passed through a financial and commercial crisis unsurpassed for severity, these investments have stood the test, both as regards payment of interest and security of principal.

Short extracts from the last reports of these two Companies which have made history in this respect will state the result in a way which will be more satisfactory than any other. The Directors of one of the Offices, adverting to the visit of a deputation of their number, state: "Notwithstanding that the Colonies were in such trouble at the time of their visit, and that some borrowers from the Society were seriously inconvenienced by the stoppage of the Banks with which they dealt, the members of the deputation—who were greatly impressed by the vast natural

resources of the different colonies—were, on their return, able to report most favourably on the Society's investments as a whole; and nothing then reported, or that has since occurred, has, in any way, lessened the confidence of the Directors in Australasia as a suitable field for investment when advances are made with care, and with the assistance of a local committee, composed of gentlemen of such experience and position as those who act for the Society."

The other Office Report remarks as follows: "The Directors desire to refer specially to the loans in Australia, solely because of the severe financial strain to which that country has recently been subjected. The Board began to lend on Colonial Mortgages in 1884, and the position of the loans has from time to time been explained to the members. These loans, confined entirely to freeholds in the most favoured districts of Victoria and New South Wales, have been granted only after the most careful valuations, and after having been approved of by every member of the Advisory Board in Melbourne. Judging from recent instances where loans have been renewed and fresh valuations obtained, the wide margin beyond the sum advanced—speaking generally, about fifty per cent. of the valuation—does not appear to have been lessened to any appreciable extent since the date when the loans were first granted. It is satisfactory to be able to add that, by latest advices received, the interest has been fully met, and that there is absolutely no arrear."

These investments have been made at 5 per cent. and 5½ per cent. on the very basement on which the prosperity of Australia rests; and if the security for them does not continue sufficient, there is reason to fear that the Colonial Governments themselves will find difficulty in raising the money to pay the interest on their stocks. I have been officially informed that the favourable experience continues, though in some instances on renewal of the loans a reduction of the rate has been submitted to rather than allow the loans to be taken up by other lenders. The consequence of this successful enterprise to these two Offices has been that one of them, which, in the Septennium ending 1887, earned £4, 2s. 1d. per cent. on its funds, has, for the Septennium ending last year, earned £4, 4s. 4d. per cent.; and the other Office, which, during the former Septennium, earned £4, 5s. 5d. per cent., has, during the Septennium just past, earned at the rate of £4, 6s. 6d. per cent. Much, of course, depends on the character, ability, and local knowledge of the agents through whom these investments are made; but there is no doubt that in Australia and New Zealand there is a field which may, with prudent precautions, be utilised to a greater extent for the investment of funds by the British Life Offices.

Another great Colonial field, which has only to a limited extent been availed of by British Offices, is the Dominion of Canada. There we have a superficial area in broad acres equal to at least thirty-five times the acreage of Great Britain—an acreage which is much more likely to appreciate in value than that of this country. Europe is full of people; the birth-rate is steadily each year exceeding the death-rate, and the surplus population of the various countries of Europe must find an outlet in the vast unoccupied fields which await them in Canada and the United States. Upwards of seventy Loan Mortgage and Investment Companies continue to do a prosperous business in lending money on mortgage in Canada at from 6 per cent. to 8 per cent. These Companies are compelled by the Canadian Law to furnish the fullest information regarding their business, and are restricted in their borrowing powers by Acts of their local Legislatures. They have borrowed nearly £10,000,000, on debenture from this country at rates varying from 3½ per cent. to 5 per cent.; and have been able, from the difference of the interest which they pay on their debentures and receive from their borrowers, not only to pay their shareholders handsome dividends, but to accumulate considerable reserve funds. They do not lend beyond 50 per cent. of the value of the properties mortgaged. The debentures of these Companies have been taken up, and are still held to a very considerable extent by Life Offices in this country. In the dearth of mortgage investments at home, it is worth inquiring if it is not possible to place money in considerable quantity at 5 and 5½ per cent. in the more settled parts of a country so well governed and prosperous as Canada.

Dr. Sprague, in his address to the Institute so far back as 24th November 1884, expressed the opinion: "I believe that at the present time the larger colonies—Australia, New Zealand, Canada—offer a very promising field for the investment of British capital. They are prosperous and growing communities under the same Crown, and, with trifling exceptions, under the same laws as ourselves, and funds may be invested in them without the feeling of doubt that must always attach to investments in foreign countries." The prevision and practical sagacity of the distinguished actuary are conspicuous in this forecast as they have been in other directions.

Directing attention now to other lands not under the British flag, one naturally turns at once to the United States of America, which, owing to ties of blood and language, we can hardly classify among other foreign countries. So far as I am aware, there has been but little done there as yet by our Life Offices in the way of granting loans and mortgages on real estate; but it is probable that, particularly on selected city properties, it presents a field which under careful and prudent management should yield satisfactory

resources of the different colonies—were, on their return, able to report most favourably on the Society's investments as a whole; and nothing then reported, or that has since occurred, has, in any way, lessened the confidence of the Directors in Australasia as a suitable field for investment when advances are made with care, and with the assistance of a local committee, composed of gentlemen of such experience and position as those who act for the Society."

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small results in production, and yielding both high and low prices, and is it still entitled to rank as a reasonably prosperous community? Agriculture and commerce in staple articles are the only occupations which can be depended upon to produce this condition. Not only should the individual borrower be thrifty, but loans should not be made in communities where there are not evidences of at least average thrift. It is not necessary that there should be large accumulations for investment, but the community as a whole should show sufficient providence to have accumulated enough means to live upon during two or three successive years of light yields of crops, depression in trade, or other circumstances calculated to abridge their customary incomes.

Let us look now at the physical conditions which should prevail. For farm loans the essential physical conditions are (1) A reasonably healthful climate with an average sufficiency of rainfall for the successful growth of the crops usually cultivated, and (2) natural fertility of soil capable of diversification and rotation of crops. Lands, however fertile, incapable of diversified production, are not safe as security. There are practically certain to come periods of great depression affecting the article produced, which in turn causes depreciation of the value of the land. Lands suited only for grazing afford a good example. They produce only grass, and, when the stock industry is depressed, pasture lands become unsaleable. Furthermore, if lands are planted year after year with the same kind of crop, they may become greatly exhausted, and require to be fertilised at much expense. In the United States the lines of diversified and successful farming are quite well defined, except perhaps in some of the recently settled parts of the West, and prudent lenders would not enter these areas until their capabilities are well established.

The approved lending field to-day in the United States for farm mortgages is the Middle West, including much of the Mississippi Valley, and some other limited areas. The centre of population in the United States has been moving steadily westward, until it is now, I believe, close to the line between Indiana and Illinois. A very large proportion of this territory is arable land. It seems inevitable that there should be a continued growth in wealth and population, and consequent accretion to the value of lands; but even should further development cease, the existing conditions will fully maintain the present valuations. Its advantageous geographical position and its exceptional natural resources will cause its further development into the seat of greatest productive industry and population in the Western Hemisphere. The people of this section may legitimately use large amounts of borrowed capital in their various agricultural and commercial enterprises for which they are able and willing to pay reasonable

results. Numerous examples may be given of financial institutions, both British and American, which show that the business, when properly conducted, affords investments of a safe and profitable character. The great majority of the disasters to so-called American Mortgage Companies, which have been reported of late, have arisen from their departing from the proper business of lending on mortgage and becoming involved in speculative adventures in no way connected with that field of enterprise.

The importance of this subject calls for some general remarks on one or two of the chief points to be kept in view in considering such securities.

Dealing with what may be called the sociological influences, it may be first of all pointed out that consideration requires to be given to the form of government exercising control over the territory in which it is proposed to lend. Having determined that the existing laws are framed to fully protect the rights of lenders, and to secure to them powers for the proper collection of money due, it is of prime importance that in addition there shall be reasonable evidence of stability and freedom from violent changes of fiscal policy tending to burdensome taxation or to great commercial depression. These troubles cannot be altogether escaped from in any country, and their consequences must more or less affect all classes of investment. One of the best safeguards against socialistic tendencies is the wide distribution of land-ownership. A nation, composed of a comparatively few large landowners and a mass of working population, may, through the exercise of sheer arbitrary power, successfully repress any dangerous growth of Socialism. A nation of small landowners (however permeated with passing theories of social reform) proves the bulwark of individualism. Human nature must change before the instinct to retain the exclusive ownership and enjoyment of an acquired possession will cease to determine men's minds against Socialism. While large land holdings tend to antagonise the non-freehold population, breeding discontent and danger to individualism, prolonged trouble growing out of communistic theories is less likely to occur in a nation made up to a large extent of those holding small tracts of land. Another important sociological consideration is the general character of the population. Race and nationality need be scarcely mentioned. The Anglo-Saxon would instinctively prefer to confine his real estate mortgage investments to sections occupied by English-speaking peoples. A safe field for investing must not embrace a community in the experimental stage of development. Sparsely settled areas will not afford permanent protection against loss, although they may appear to do so during prosperous eras. The test is, has the section passed beyond the frontier stage through a term of years exhibiting both large and

£11,705,106 lent in this way, no less than £8,847,282 has been placed by Scottish offices; London offices and Lancashire offices dividing between them the balance of £2,857,824 in almost equal proportions.

Loans on Policies.

These loans which are invariably kept within the surrender value of the policies are not excelled in security by any other class of investment. The total amount lent is £10,270,509, being a small percentage of the policies in force, which now considerably exceed £500,000,000. The rate of interest charged on policy loans in England is as a rule 5 per cent., though one office publicly announced a few years ago that it had reduced its rate to 4 per cent. In Scotland 5 per cent. is the rate charged when the amount of the loan is under £100, and 4½ per cent. for loans of £100 and upwards. The lower rate charged in Scotland may account for the larger ratio of funds lent by Scottish offices in this way. The trouble involved in connection with loans of small amount is a sufficient reason for the higher rate being charged on small sums, which probably constitute nine-tenths of the whole amount lent. It appears to me that the time has now come when the Companies should in their own interests, as well as in the interests of the policyholders, grant a reduction of the rate to 4 per cent. for sums amounting to £300 and upwards. Such a step would probably lead to a considerable increase in the amount lent under this head.

Loans on Rates and Rent Charges.

This class of investment has more than doubled in amount since 1870, while the ratio to the total funds has varied from 9·30 in 1871 to 13·91 in 1880, and is now 9·79. There must have been during the period considerable changes in the constituent parts of this class. Municipal bonds—home, foreign, and colonial—are included in it, as well as direct loans on rates and rent charges. Home municipal bonds and direct loans on rates and rent charges yield now so small a return in comparison with what they formerly yielded, that it is probable that further investing under this class will be largely confined to colonial and foreign bonds. There is a wide field for investment still open in such securities at rates yielding £3, 15s., up to as high as £4, 10s. per cent., but great discrimination is required in the choice of such investments. I give below a few facts relating to the position of five of the leading Canadian municipalities, which will indicate some of the points on which it is desirable that information should be obtained in considering such loans; but, in addition

rates of interest. Money advanced here by established methods of conservative lending will afford safe investments. The areas referred to are not to be confused with those frontier sections lying west of the Missouri River and east of the Rocky Mountains, where high rates of interest scarcely compensate for the great risk of loss.

City loans, when properly granted, usually show more promptitude in the payment of interest than farm loans, but they require to be placed with much greater care. Values of city properties are subject to greater fluctuations than farm lands, and the financial standing of city borrowers is more subject to change than that of rural. While the same caution as regards selection should be used as in the case of loans on property at home, it may be stated generally that city loans in America should be confined either to first-class retail shop and office property, or to first-class residential areas; that is, those sections or streets already developed in such a manner that the surroundings indicate the existing occupation to be of a permanent character.

From 1886 to 1890 there took place a great inflation in the value of real estate in America, which has since completely broken down, and values are now on so low a basis in most districts as to make lending with 50 per cent. margin tolerably safe.

I have discussed the outlook in this direction at considerable length, as the question whether the extra rate of interest earned on these mortgages compensate for the extra risk and extra trouble involved in looking after them, is at the debatable stage, and may elucidate varying opinions from the members of the Society.

In such a paper as this it would, though interesting, be perhaps out of place to consider the way in which the effecting of such mortgages can best be arranged. Companies lending on a large scale would find it best to support a special organisation, while others investing on a less extensive plan may, with the exercise of care and caution, discover different agencies of a trustworthy nature through which such loans can be effected in a satisfactory manner. One or two Mortgage Companies in America of high standing offer to British Assurance Companies, who will lend not less than £10,000 to grant Debentures therefor, bearing interest at 5 per cent., and to give as collateral security approved mortgages registered in favour of the lending company or its nominees, being first liens over real estate, worth at least two-and-one-half times the amount lent upon it.

Within the next decade other fields besides Canada and the United States will probably become so settled and prosperous as to offer to lenders on mortgage satisfactory security with a good rate of interest. Meantime it is interesting to observe to what a large extent the movement in favour of lending on mortgages outside the United Kingdom has been a Scottish one. Out of

a policy of assurance on the life of the borrower is usually effected for an amount considerably exceeding the loan, and two or three men possessed of means are bound as sureties for payment of the premiums and repayment of the loan by instalments spread over a period of years. The experience of most Offices which have tried this form of investment has been unfavourable, though one or two Companies, by exercising great care and unflinching severity when occasion called for it, have been able to avoid loss and earn a good rate of interest, while at the same time adding considerably to the amount of their new business.

The various classes of loans commented upon above make up the leading branch of Life Office Investments, which absorbs 53·94 of the total funds of all the British Offices, and 61·52 of the funds of the Scottish Offices. Mr. A. G. Mackenzie in his admirable paper on the "Practice and Powers of Assurance Companies in regard to the Investment of Life Assurance Funds," which appears in the Twenty-ninth volume of the Journal of the Institute, brings out that the proportion of funds invested in loans and mortgages as compared with those under the head of Investments is larger in the Mutual Offices than in the Proprietary Companies by fully 14 per cent.

We have now to consider, but necessarily in much shorter compass, the other great branch which absorbs about 44 per cent. of the funds, and which, in the Schedules of the Act of 1870, goes under the heading of Investments.

British Government Securities.

These have been a rapidly decreasing quantity in all the offices, and with Scottish offices, as you will see from the table, have very nearly reached the vanishing point. In the beginning of the century considerably more than half of the total funds of the British offices were invested in such securities; the great decrease in the interest returned, as illustrated by the foregoing diagram, will fully explain how these securities have passed from their former preponderating position.

The National Debt (Conversion) Act, popularly known as Goschen's Act, is largely responsible for the great reduction in the interest return from all kinds of high-class securities. By that Act interest on Consols was reduced to 2¾ from 5th April 1889, to be reduced at the end of fourteen years (1903) to 2½ per cent., the principal to be redeemable at par on and after 5th April 1923.

to these essential particulars, there are other points of importance which should be kept in mind, such as the limit of the borrowing powers of the municipality, the amount of the revenue derived from taxation and from other sources, and the amount of annual interest required for the service of the debt. Let us instance the City of Toronto, as illustrating how it is affected by these additional points. It has a special Act of its own by which it is authorised to issue debentures running for forty years, up to a limit of 12½ per cent. for its ordinary debt on the total assessed value of its real estate up to £20,000,000, and of 8 per cent. upon the assessed value in excess of that amount. The aggregate municipal rate is limited to 2·5 per cent. on assessable property. The income derived from taxation is £627,100, and from other sources, £163,900. The amount required annually to pay its debt charges including Sinking Funds amounts to £326,000.

STATISTICS OF CANADIAN MUNICIPAL SECURITIES.

City.	Population.	Rateable Valuation.	City Property.	Bonded Debt.	Annual Revenue.
Toronto, . .	190,000	£31,000,000	£2,466,000	£3,382,000	£647,300
Montreal, . .	250,000	34,378,184	2,523,165	4,853,992	546,322
Quebec, . . .	63,000	5,343,000	880,300	1,191,000	113,400
Hamilton, . .	46,700	5,030,000	718,000	598,000	135,600
Ottawa, . . .	44,000	3,722,317	400,000	456,263	120,320
St. John, N.B.	40,000	4,984,233	832,562	738,083	110,202

The bonds of these six Canadian cities yield from £3, 14s. 9d. to £3, 18s. 9d. at their present prices on the London Stock Exchange. The bonds of smaller Canadian municipalities and townships can be bought to pay from 5s. to 10s. per cent. more than the above, but they have not the advantage of a quotation on the Exchange.

LOANS ON PERSONAL SECURITY.

This class of investment has the distinction of bearing the smallest ratio of any to the total funds, the amount having decreased from 1·65 in 1871 to ·71 in 1894. In the Scottish Offices the decrease has been from 1·47 to ·65. When such loans are granted

at a discount and not written up to present Stock Exchange values, they are good to hold, but they offer little inducement for an Insurance Company to purchase them at present prices.

Debentures and Debenture Stocks.

On referring to the table, you will find that there has been considerable fluctuation under this head. In 1871 the ratio was 9·50; fourteen years later it had fallen to 7·27, and it has now risen to 12·35. The increase in recent years may have arisen from investments made in debentures and debenture stocks of good British industrial companies, and in those of trust companies and Colonial mortgage companies which have their head offices some inside and others outside the United Kingdom. The terminable debentures of British railways were for many years a favoured investment of British life offices. At the time when the railway companies, feeling the risk of having large blocks of these terminable debentures falling due at inconvenient times, were taking measures to issue in their place debenture stock, there was delivered a remarkable lecture by Mr. John Coles of London before the Institute on 21st December 1868, urging the Life companies to accept the new form of security which he stated the Life offices could obtain at that time to yield 4¾ per cent. The short loans and debenture bonds at the time his paper was read amounted to £87,357,939, and the debenture stock to only £17,730,134. The short loans are now only £13,680,671, while the debenture stock amounts to £252,676,379. The very high price to which the debenture stocks of British railways have now risen puts them completely out of the field as investments for life offices. We have, therefore, to consider if there is no quarter from which this class can be replenished, so as to maintain the rate of interest equal to the average of former years.

I propose briefly to direct your attention to the debenture stocks of some of the leading American railways, which, so far as I can learn, have only up to the present been availed of to a very limited extent by the life offices in Britain.

Bonds of American Railroads.

The safety of American railway bonds is much more difficult to determine than that of the debentures or debenture stocks of British railways.

In Great Britain, Parliament decides whether the needs of the public call for a new line or not. The amount which a railway can borrow on debenture is limited to one-third of the share capital,

INDIAN AND COLONIAL GOVERNMENT SECURITIES.

These have increased from 4·79 in 1871 to 7·16 in 1894, and probably consist, to the extent of 75 per cent. of the stocks of the various Australian Governments. There have been frequent opportunities for purchasing these stocks during the past two years at a price to pay four per cent., but they have again risen to a 3½ per cent. basis, and are not likely to rise much higher till the troubles which confront the reconstructed banks have been successfully overcome. These reconstructed banks have under their schemes of reconstruction undertaken to meet the demands for the payment of deposit receipts between the years 1897 and 1901, amounting to £44,000,000. It is satisfactory to find that some of the strongest of them are taking steps to anticipate certain of these payments, so as to lighten the pressure which must be felt as the time of fulfilment draws nearer. It is reported that one Melbourne Bank has sent a high official as ambassador to Great Britain to negotiate for a reduction of no less than 2 per cent. in the rate of interest payable on its extended deposits. The Creditors, especially those north of the Tweed—looking to the brighter prospects in the Colony, are not likely to acquiesce in such a proposal—though it is probable that in the likely event of one or two of the Banks requiring a further extension of time for repayment of part of their maturing obligations the consent of the Creditors would not be withheld to reasonable proposals of this nature. It has also been suggested, and for this reason the subject is referred to under this head, that the Colonial Governments may come to the help of the Banks in their respective Colonies if the need should arise, in the same way that the Government of New Zealand came to the help of the Bank of New Zealand. Looking at the situation all round, and weighing the probabilities for and against repayment in full, it appears to me that the prices at which some of these deposits are at present quoted in the market are unduly low.[1]

At the present time the Provincial loans of the Provinces of Canada, which are well secured, can be bought to pay a higher rate than the Australian Government loans.

India 3 per cent. and 3½ per cent. stocks have risen to so high a premium, that with regard to the conservation of the full capital invested it would be unsafe for Life Offices to purchase them while the interest return is little above that yielded by Consols. The loans of the Dominion of Canada and the Cape of Good Hope are in the same category. If bought some years ago

[1] Between the reading of this paper and revising for press there has been a remarkable rise in the price of these deposits.

Attention also must be directed to the particular mortgage bond which it is proposed to buy. Is the bond over a valuable part of the system in question, and not over a portion which, in the event of foreclosure, might be left out in the cold?

It should however be said that there may be cases in which an investor in this country may have probed all these questions to his own satisfaction, and yet may be apt to go wrong from want of knowledge as to what is going on behind the scenes. There may be dishonesty in the management, or a rival route may be inaugurating disastrous competition. It is therefore most desirable to have as adviser some one thoroughly conversant with American affairs, and who can supply the local knowledge which those living here can hardly expect to have.

The following is a list of first-class American railroads, all the securities of which may be recommended.

These from their strategic position may be said to be indispensable to the community; they are all, even in these times of depression, paying dividends on their stock, which of course comes behind the interest on bonds; and there can be no doubt that when the common sense of America asserts itself, and by drastic currency legislation puts its finances into shape and trade once more improves, these railroads will enormously benefit by the increase of business; in the meantime, all their obligations form desirable investments, and yield at present prices from £3, 8s. 5d. to £4, 17s. per cent.:—

(1) New York Central railroad.
(2) Pennysylvania railroad.
(3) Illinois Central railroad.
(4) Chicago and Alton railroad.
(5) Chicago and North Western railroad.
(6) St. Paul Minneapolis and Manitoba railroad.

Concluding Remarks.

I have referred to the immense amount of money which has been absorbed during the last twenty-five years in the Debenture Stocks of British Railways. During that same period there have been created many excellent Debenture Securities which now stand at a high premium, which were not dreamt of at the beginning of the period, such as the Debenture Stocks of Telegraph and Telephone Companies, Steamship, and Trust Companies and of many high class Industrial Companies, brought into being by the Limited Liability Companies Acts, and all these securities have found their way to a considerable extent into the category of Insurance Company investments. On looking over the assets of Companies, I find, Suez Canal Shares and New River Company Shares among the

and no debenture can be issued till the whole capital has been ubscribed and a considerable portion is actually paid.

There are no such acts of the legislature in America fixing imitations analogous to these. Railways may be, and unfortunately ave been, duplicated where there was not the slightest need for hem. In most cases the whole cost of building the railroad is rovided by the bondholders, the stock, for which no consideration ; all may have been paid, being divided among the promoters. an Oss, in his book on American railways, computes that the iare capital of American railways, though nominally amounting £1,000,000,000, represents a cash investment of certainly not ore than £100,000,000. Add to these constitutional flaws the ct that American railway management has in many cases been ossly dishonest and corrupt, and the facility and frequency th which these railways pass into the hands of receivers is counted for.

The roguery which has characterised the management of nerican railways and a vast amount of bitter experience, have l British investors to view these securities with the deepest strust. It is worth inquiring whether conditions have not now ered for the better, and whether, when a careful selection is ade, the bonds of a considerable number of railways may not rm a safe and remunerative investment for the funds of a life ice.

In the United States during the last ten or fifteen years the ne process has been going on which took place in this country an earlier date.

A gradual consolidation has been proceeding, whereby small roads have been to a large extent united into great systems, l as a rule this has increased the stability of the securities of smaller concerns, for the large systems have had more chance urviving the keen competition and low rates universally preva- , than an isolated local line could have.

And, as a rule, it is to the securities of these large systems that Insurance Board should look in choosing its bonds. But these e systems have not all been equally fortunate: many of them heir eagerness to reach remote points have burdened them- es with unremunerative lines, which, as one may say, don't l their own weight in the boat.

t is therefore necessary to judge of each railroad security by history, and the following questions naturally occur:—

What proportion does the debt bear to the capital stock?

Is the capital stock paying a dividend; how long has such dividend been paid; and what is its market price?

What is the proportion of the net revenue to the interest charge?

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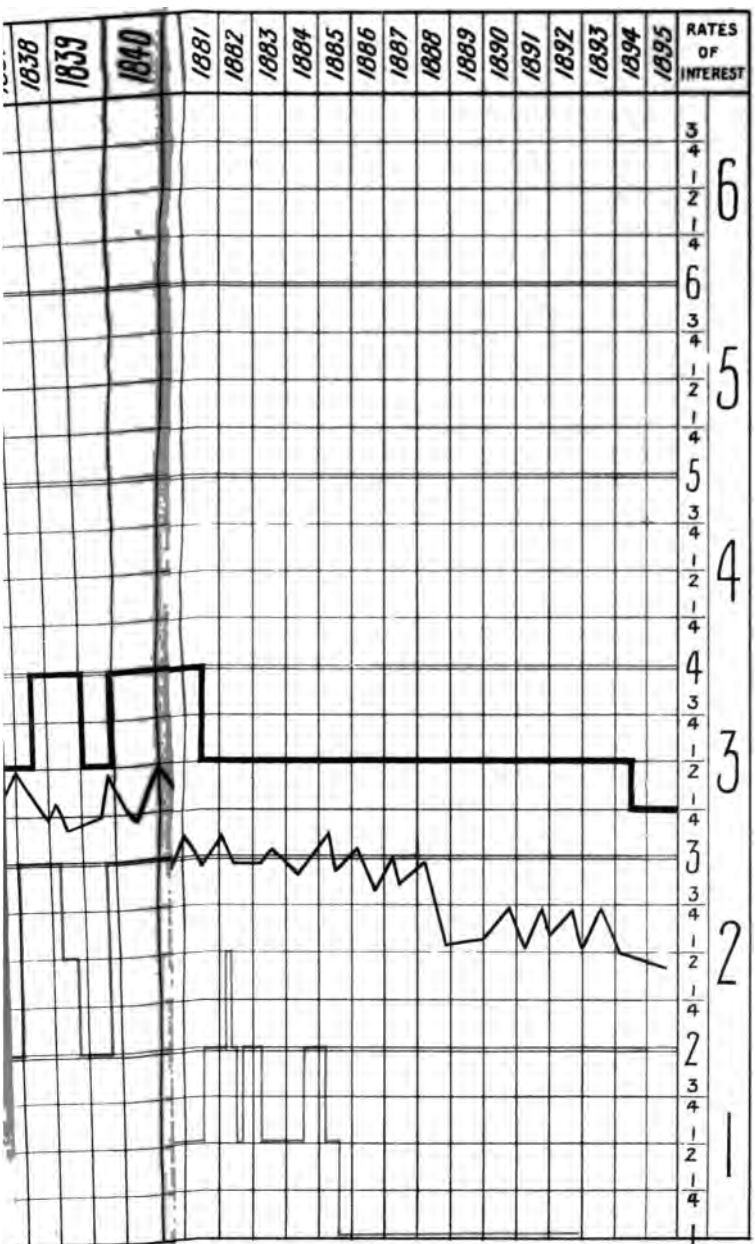

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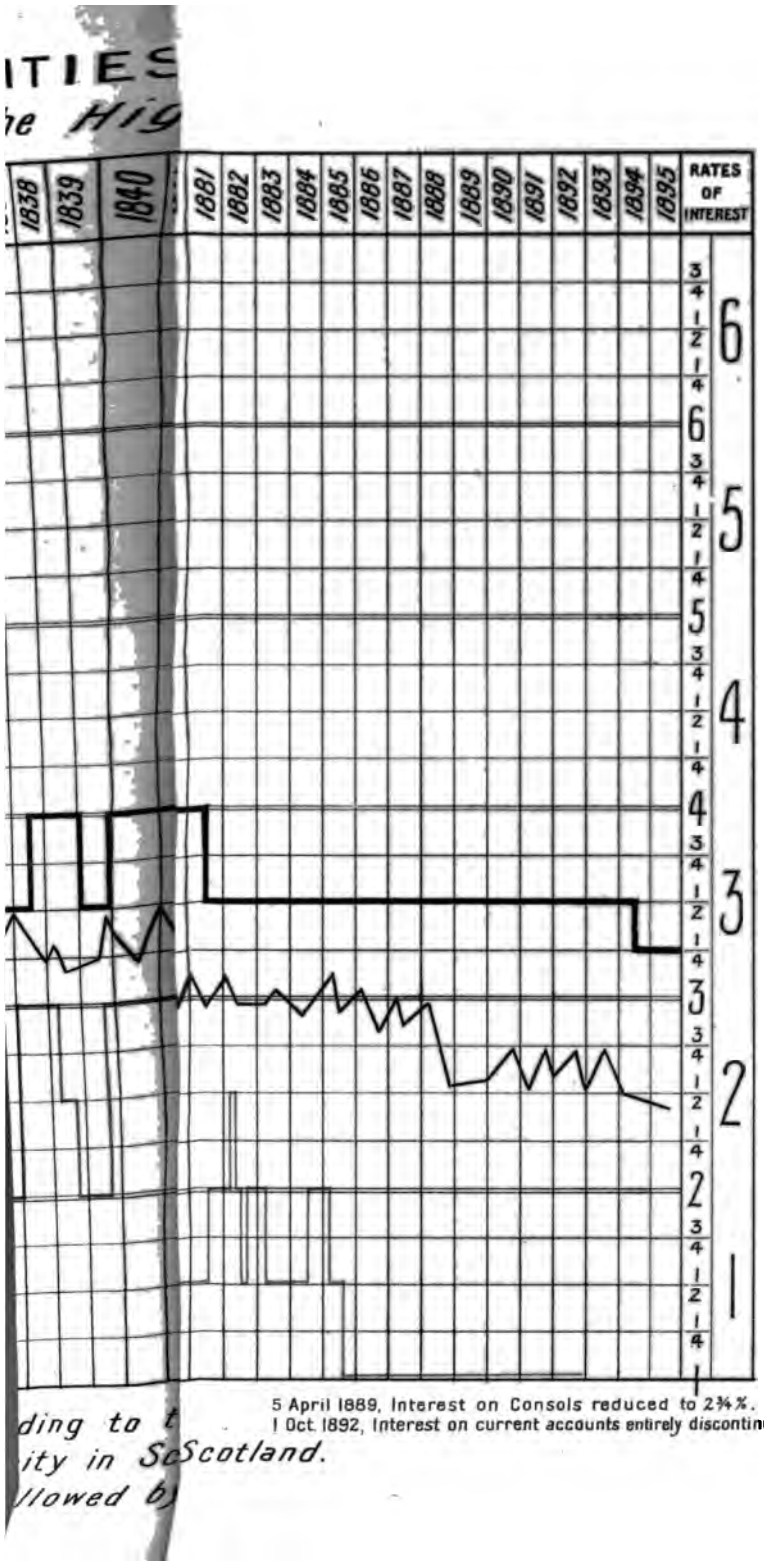
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Lectures on Insurance Law

BY

WILLIAM HARVEY, B.A., LL.B., ADVOCATE

PREFACE

THE following Lectures were delivered under the auspices of the Faculty of Actuaries during the Session 1894-95, and they are now, at the suggestion of the Council of the Faculty, printed as part of the Transactions of the Actuarial Society of Edinburgh, in the belief that they will form a useful addition to the existing literature on the law relating to Insurance.

CONTENTS.

LECTURE I.

CONDITIONS IN LIFE POLICIES.

(*Delivered December 20th*, 1894.)

IN the lectures which I delivered last year to the Actuarial Society of Edinburgh, I dealt with the representations in the proposal for insurance which usually form the subject of one of the conditions in the policy. In the present lecture I propose dealing with the other usual conditions in life policies, including the statutory condition as to insurable interest, the conditions relating to the payment of premiums, and lastly, the conditions excepting certain risks from the policy in respect either of locality, occupation, or cause of death. I shall also deal incidentally with the powers of local agents to waive a forfeiture of any of the conditions of the policy. In regard to the references to the American authorities, perhaps I should explain that I have in all cases referred to English or Scottish authorities where there were any, and have only used American cases as ancillary to our own, or where there was no English or Scottish authority. In some cases I have referred to American authorities by way of contrast, but when this is the case, I have always explained the differences between the American law and our own.[a]

(1) INSURABLE INTEREST.—The condition requiring an insurable interest is statutory. Whether expressed or not, it is implied in all policies where the insurance is upon the life of another. The statute which prescribes it is known as the Gambling Act (4 Geo. III. c. 48), and contains only three sections. Section 1 provides that no insurance shall be made upon the life of any person in which the person for whose use or benefit the insurance is made shall have no interest, or by way of gaming or wagering. Section 2 requires that the name of the person for whose benefit the insurance is made shall be inserted, as such, in the policy.

[a] The abbreviated references usually adopted are U.S. for Otto's Supreme Court Reports. Am. R. and Am. St. R. for the series of cases selected from the State Courts Reports, and republished in the "American Reports," and "American State Reports," respectively.

Section 3 limits the amount recoverable to the value of the interest which the insured has in the life insured. As interpreted by the leading cases, the value of the interest referred to in the third section is to be taken at the time when the policy is effected, and not when the event insured against happens. Accordingly, the cessation of the insured's interest subsequently to the issue of the policy will not render the insurance void. Thus a creditor, who has insured his debtor's life in his own name and on his own behalf, may recover the amount insured, not exceeding the debt, although the debt has been discharged before the policy becomes a claim. The statute therefore does not make a policy of insurance a contract of indemnity. Contracts of fire and marine insurance are by common law declared to be contracts of indemnity, and are so, independently of the statute. In the case of either of these contracts, the insured can only recover the value of his interest at the time the loss happens, but in life insurance the amount recoverable depends not on the interest at the time when the life falls, but on the interest when the insurance is made. The mischief against which the Act is aimed is speculation on human lives—a species of gambling which the legislature regarded as opposed to the public interest, chiefly on the ground that such gambling policies were usually effected on lives known to be bad. But the Act only relates to the issue of policies to persons who have no interest in the life insured, or a merely nominal interest; it does not affect subsequent dealings with a policy originally valid.[a] Apart from the statute, a wager policy is not invalid by the common law of England.[b]

The interest required by the statute is a pecuniary interest, and one which may be enforced legally.[c] The interest must therefore depend either on contract or on the obligation to support which the law in certain cases attaches to relationship. In the first case the contract must establish, between the person obtaining the insurance and the person whose life is insured, the relation of creditor and debtor, or of surety and principal debtor, or otherwise create a reasonable expectation of advantage or benefit from the continuance of the life.[d] When the relation of debtor and creditor exists, it is not necessary to sustain a policy for the benefit of the creditor on the debtor's life that the

[a] *Dalby* v. *India and London Assurance Co.*, 15 C. B. 365; *Law* v. *Indisputable Life Ins. Co.*, 1 K. & J. 223; *Connecticut Mutual Life Ins. Co.* v. *Schaefer*, 94 U.S. 457.

[b] *Keith* v. *Protection Marine Ins. Co.*, 10 L. R. Ireland, 51.

[c] *Halford* v. *Kymer*, 10 B. & C. 724; *Hebdon* v. *West*, 3 B. & S. 579. In America, wager insurances are held to be illegal by the rule of common law, but a pecuniary interest is not held necessary. *Ætna Life Ins. Co.* v. *France*, 94 U.S. 561; May on *Insurance*, 2nd edition, §§ 103-107.

[d] *Bradford* v. *Saunders*, 25 W. R. 650.

debt should be of ascertainable amount, or should be immediately exigible. When the interest exists, but its value is not definitely ascertainable at the time the policy is effected, it will be held to have the value which the parties have put upon it in the policy, unless this value exceeds the actual extent of the assured's interest at any time. This proposition seems to be a legitimate inference from the recent case of *Barnes* v. *The London, Edinburgh and Glasgow Life Insurance Company.*[a] In that case the policy was in the name of the plaintiff upon the life of her step-sister, who was, both at the date of effecting the policy, and at her death, a minor. The plaintiff had voluntarily undertaken to educate and maintain her step-sister, and had given a promise to that effect to the child's mother. The policy was held valid on the ground that the assured had an interest as creditor in the life insured, because she had a prospective claim to repayment of the sums she had expended on the child's behalf. Had the assured been under a legal obligation to support her step-sister, the Court indicated that the policy would have been void, because no claim to repayment would in that case have arisen.

In giving judgment, Mr. Justice Smith states the law as follows:—

"A man can insure the life of his debtor. For instance, suppose an agreement by a debtor to pay his creditor £1000 by successive monthly instalments of £100, the creditor could insure the debtor's life, and at his death recover in an action on the policy against the insurance company. In the present case there is sufficient evidence of an undertaking on the plaintiff's part to incur expense in maintaining, bringing up, and perhaps in burying the child. This decision does not trench on the cases in which it has been held that a father has no insurable interest in the life of his son. There is an obligation in law on a father to maintain his son; there is no such obligation here, but an undertaking to incur expense; and I can see no reason why the plaintiff, having incurred and incurring such expense, has not a pecuniary interest to the extent of each sum of money as it was successively expended by her for the child's benefit."

On the same principle it has been decided in America that a partner has an insurable interest in the life of his co-partner, although such interest is not definite or ascertained. The interest arises from the contract of partnership, the effect of which is to establish a joint obligation for the company's debts and a reasonable expectation of advantage and benefit from the services and credit of the co-partner, a benefit or advantage depending on the continuance of his life.[b] For a similar reason a person who has

[a] L. R. [1892] 1 Q. B. 864.

[b] *Connecticut Mut. Life Ins. Co.* v. *Luchs*, 108 U.S. 498.

acquired a right to a proportion of the earnings of another during a certain period, has an interest in the life of the latter, not the less insurable, that at the time when the insurance is effected it cannot be valued or apportioned.[a] Where a clerk or servant has a contract for service for a number of years at an annual salary, he has an insurable interest in the life of his employers.[b] Conversely, the life of a servant or agent, whose services may be a source of profit, is also insurable by his employer. In that case, the value of the interest does not depend on the amount paid as wages or salary, which would not be due if the employment were terminated by the death of either of the parties to the contract. It depends on the expectation of pecuniary advantage to the employer from the engagement, which would be frustrated by the death of the person employed.

A creditor who insures his debtor's life in his own name is, in general, on the same principle, entitled to cover future advances by his policy. In the case of loans upon reversions or on post-obit bonds, the interest on the loan is sometimes allowed to accumulate for a definite period, or until the expectancy is realised.[c] In such cases the lender has an insurable interest in the borrower's survivance, to the extent not only of the original advance, but of the interest for the period agreed on, and the premiums of insurance. But if the debtor does not assign any contingent right in security, a policy on his life in the creditor's name, covering interest on the loan and premiums for a long period of years, would probably be held invalid under the statute, because the creditor in that case would have no substantial interest in his debtor's life apart from the policy. The test of the validity of such an insurance would be whether there was any real intention that the debt should be repaid during the debtor's life. If this were not the case, the insurance would be a mere wager. But assuming that the creditor has a substantial interest, a difficult question arises as to its extent, and upon this question the Courts are inclined to overlook considerations which are familiar to actuaries. I lend a sum to A, being secure of repayment if he lives, and I secure myself against loss by his death by taking out a policy. I insure for £1000, which will cover principal, interest, and premiums if he lives to a reasonable age. He dies next year, and I am only allowed to recover the balance then due; or he lives for fifty years, and my advances have grown into £2000. My interest in the policy, if the transaction was legitimate, was equal to its

[a] *Bevin* v. *Connecticut Mut. Life Ins. Co.*, 23 Conn. 244. May on *Insurance*, § 109.

[b] *Hebdon* v. *West*, 3 B. & S. 579.

[c] *Marquess of Northampton* v. *Pollock*, 45 Ch. D. 190; App. Cas. [1892], 1.

full amount from the first. The premiums I had to provide for—or sacrifice all benefit—were the exact equivalent of the whole £1000, and any profit I might make by A's early death was due to me in return for the risk of heavy loss if he lived too long.

In America it has accordingly been held that a creditor who undertakes to pay the premium of insurance on his debtor's life and to allow the interest on the debt to accumulate, may insure to the extent of the principal, the premiums during the expectancy of his life, and interest for the same period on the principal and premiums.[a]

Where, however, the value of the interest is ascertainable at the time the insurance is effected, the rule is that the policy will only be enforceable for that amount. Thus in *Bradford* v. *Saunders*,[b] where a policy was taken out by one of two joint obligants under a bond, upon the life of his co-obligant, for the whole sum due, the policy was treated as effectual only to the extent of one half of that sum, on the ground that this represented the true value of the insured's interest in his co-debtor's life. In other words, the interest was limited to the share due by the person whose life was insured, for which, in addition to his own share, the assured would become liable upon the death and insolvency of his co-obligant. In *Hebdon* v. *West*,[c] it was held, on the same principle, that an employee, under contract with his employer for a fixed period and at a fixed salary, had an insurable interest in his employer's life, but only to the extent of the capitalised value of the salary for the period in question. In the same case the rule was laid down that the interest must arise under a contract enforceable at law, and it was held that a mere promise, not legally binding, on the part of the employer, who was a member of a firm, not to enforce against the employee a debt due to the firm, conferred no insurable interest upon the employee. In spite of such a promise the firm might have enforced the debt the next day. In this case, two policies, with different companies, had been effected by the employee upon his employer's life, exceeding in their aggregate amount the value of the interest which he was held to possess. The assured had received from one of the offices a sum exceeding this interest, and it was held, in an action by him against the other office, that nothing further could be recovered. In a case like this, the company which had paid the whole value of the assured's interest would, on the general principles of insurance law, have a claim for proportionate contribution against any other office which had insured the same life on behalf of the same person.

[a] *Ulrich* v. *Reinoehl*, 1891, 143 Penn. 238; 24 Am. St. R. 534.
[b] 25 W. R. 650.
[c] 3 B. & S. 579.

As regards the interest arising from relationship, the principle is that, apart from a legal obligation to support, relationship does not confer an insurable interest. It has accordingly been held in England that a wife has an insurable interest in her husband's life, and a child in the life of its parent, but that a husband has no insurable interest in his wife's life, or a father in his children's.[a] In England a parent has no direct claim for maintenance against a child, and consequently has no insurable interest in his life; but the rule would seem to be otherwise in Scotland, where the law imposes a direct legal obligation of maintenance upon children. As regards the case of a wife, it seems to have been assumed in Scotland that the husband had an interest in her life sufficient to sustain a policy; but the question has never been the subject of direct decision.[b] By the law of Scotland, a husband is entitled to pecuniary compensation, apart from special damage, for the death of his wife, where the claim arises *ex delictu*, and there seems no reason why the loss by her death should not have a pecuniary value when the claim is founded upon contract.[c] In America, near relationship combined with actual dependence of the one party on the other for support, is held, apart from any legal claim, to give an insurable interest. Hence a sister actually supported by her brother, is held to have an insurable interest in his life.[d]

In the case of settlement policies effected under the provisions of the Married Women's Policies of Assurance (Scotland) Act, 1880, or of the English Married Women's Property Act, 1882, it is not necessary that the beneficiary under the trust should have an insurable interest in the life of the truster. The policies contemplated by both Acts are of the nature of testamentary provisions, which, apart from the statute, would be revocable. The object of the legislature was to render such trusts effectual, by protecting the grant against the creditors of the granter, and by declaring that the policy should not form part of his or her estate. The term "the insured" in the statutes is always used to denote the person whose life is insured, so that all policies effected in virtue of these provisions are to be regarded as "own life" policies. Under the English Statute a wife may insure her life and direct the sum insured to be a trust for the benefit of her husband in case of his survivance, but this does not make him a party to the contract with the company.

[a] *Halford* v. *Kymer*, 10 B. & C. 724. *Reed* v. *Royal Exch. Co.*, Peake's Add. Cas. 70. *Shilling* v. *Accidental Death Ins. Co.*, I. F. & F. 116.

[b] See *Wight* v. *Brown*, 11 D. 459.

[c] May on *Insurance*, § 104, and cases cited *infra*. The principles of the American cases seems equally applicable to the law of Scotland.

[d] *Ætna Ins. Co.* v. *France*, 94 U.S. 561; *Currier* v. *Continental Life Ins. Co.*, 52 Am. R. 134, and note by Reporter, p. 135. May on *Insurance*, 2nd edition, §§ 103-107.

He has no title to sue for a breach of the contract, and there is therefore no room for the defence of want of insurable interest, which can only be taken by the company in an action against them for payment of the policy. It has accordingly been held that a policy under section 11 of the Married Women's Property Act, 1882, no trustee having been appointed, vests in the executors of the assured, and that they and not the person nominated as the beneficiary have the right to sue upon the policy. They would be bound to execute the trust in terms of the destination in the policy, or, if the trust purposes were satisfied, to deal with the proceeds as part of the truster's estate. If a trustee is named in the policy or appointed by separate writing, the title to sue would vest in him; but if the trust purposes were fulfilled or became incapable of fulfilment, the trustee would be bound to denude in favour of the executors.[a] Apart from the statute, a policy effected by A on his own life and made payable to B, in case of B's survivance, would seem to be valid even if B had no insurable interest in A's life, provided the direction was of a testamentary nature and revocable. It would then merely be a gift of part of the insured's estate at death. On the other hand, if the effect of the nomination in B's favour was to vest in him the sole and exclusive right to the policy, and give him a title to sue the company directly for payment, it is equally clear that B would be the person for whose use and benefit the policy was effected, and would require to have an interest in the life of A.

It has already been pointed out that the Statute of George III. does not apply to transactions with the policy subsequent to its issue. A policy, originally valid, may accordingly be assigned to one who has no interest in the life insured.[b] It is in this way possible in many cases to evade the statute by getting persons to effect policies on their lives and then to sell them. Such transactions are, however, illegal, and the Courts will not sanction an assignment merely for the purpose of evading the statute. It has accordingly been held in more than one case that a policy on the life of one person and expressed to be for his benefit, but really intended, *ab initio*, for the benefit of another, to whom it is immediately assigned, and by whom all the premiums are paid, is void. This rule is laid down by Baron Pollock in the case of *M'Farlane* v. *The Royal London Friendly Society.*[c] In that case Baron Pollock adopted as correct the ruling of Lord Abinger in *Wainewright* v. *Bland.*[d] In *Wainewright* v. *Bland* the policy was on the life of a Miss Abercrombie and in her name. The name of Wainewright did not appear on the policy, but it was taken out at his instigation

[a] *Cleaver* v. *The Mutual Reserve Fund Life Ass.* (1892), 1 Q. B. 147.
[b] *Ashley* v. *Ashley*, 3 Simon 149.
[c] 2 Times L. R. 755.
[d] 1 Moo. & R. 481, 486.

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[c] May on *Insurance*, § 104, and cases cited *infra*. The principles of the American cases seems equally applicable to the law of Scotland.

[d] *Ætna Ins. Co.* v. *France*, 94 U.S. 561; *Currier* v. *Continental Life Ins. Co.*, 52 Am. R. 134, and note by Reporter, p. 135. May on *Insurance*, 2nd edition, §§ 103-107.

He has no title to sue for a breach of the contract, and there is therefore no room for the defence of want of insurable interest, which can only be taken by the company in an action against them for payment of the policy. It has accordingly been held that a policy under section 11 of the Married Women's Property Act, 1882, no trustee having been appointed, vests in the executors of the assured, and that they and not the person nominated as the beneficiary have the right to sue upon the policy. They would be bound to execute the trust in terms of the destination in the policy, or, if the trust purposes were satisfied, to deal with the proceeds as part of the truster's estate. If a trustee is named in the policy or appointed by separate writing, the title to sue would vest in him; but if the trust purposes were fulfilled or became incapable of fulfilment, the trustee would be bound to denude in favour of the executors.[a] Apart from the statute, a policy effected by A on his own life and made payable to B, in case of B's survivance, would seem to be valid even if B had no insurable interest in A's life, provided the direction was of a testamentary nature and revocable. It would then merely be a gift of part of the insured's estate at death. On the other hand, if the effect of the nomination in B's favour was to vest in him the sole and exclusive right to the policy, and give him a title to sue the company directly for payment, it is equally clear that B would be the person for whose use and benefit the policy was effected, and would require to have an interest in the life of A.

It has already been pointed out that the Statute of George III. does not apply to transactions with the policy subsequent to its issue. A policy, originally valid, may accordingly be assigned to one who has no interest in the life insured.[b] It is in this way possible in many cases to evade the statute by getting persons to effect policies on their lives and then to sell them. Such transactions are, however, illegal, and the Courts will not sanction an assignment merely for the purpose of evading the statute. It has accordingly been held in more than one case that a policy on the life of one person and expressed to be for his benefit, but really intended, *ab initio*, for the benefit of another, to whom it is immediately assigned, and by whom all the premiums are paid, is void. This rule is laid down by Baron Pollock in the case of *M'Farlane* v. *The Royal London Friendly Society*.[c] In that case Baron Pollock adopted as correct the ruling of Lord Abinger in *Wainewright* v. *Bland*.[d] In *Wainewright* v. *Bland* the policy was on the life of a Miss Abercrombie and in her name. The name of Wainewright did not appear on the policy, but it was taken out at his instigation

[a] *Cleaver* v. *The Mutual Reserve Fund Life Ass.* (1892), 1 Q. B. 147.
[b] *Ashley* v. *Ashley*, 3 Simon 149.
[c] 2 Times L. R. 755.
[d] 1 Moo. & R. 481, 486.

and request, and the premiums were paid by him. The view expressed by Lord Abinger, that the policy was void as an evasion of the statute, received ample justification from the fact that Wainewright was afterwards transported for defrauding the insurance company, and it was believed that, like Palmer, he had poisoned more than one person whose life he had insured in this way. Miss Abercrombie, who was his sister-in-law, died within a year or so after the insurance was effected, but the office had not evidence enough to prosecute for murder.

In the case of *Hambrough* v. *The New York Mutual Insurance Company*,[a] a defence to the claim upon the policy might validly have been taken on the ground that the insurance, although nominally in the name of Hambrough, was, as the jury found, substantially effected by Monson, and that his name not having been inserted as the person benefited, in the policy, it was void under the second section of the Gambling Act.[b]

Under the second section of the Gambling Act it has been held that a policy of insurance issued to a wife on her husband's life but really intended for the benefit of the husband, was void by reason of the omission to insert his name as the person for whose use and benefit the policy was effected.[c]

In America the authorities are conflicting upon the question whether a valid assignment of a life policy can be made to one who has no interest in the life insured. In the Supreme Court and in many of the State Courts, it is held that a person who has no insurable interest in the life of another cannot take or hold by assignment a policy upon the life of such other person, and that a creditor to whom a policy upon his debtor's life has been assigned, can only avail himself of it to the extent of his debt, even if the intention of the parties was to transfer the whole interest.[d] When this is the rule adopted by the Courts, it is held that, although the assignment is invalid, this does not affect the validity of the insurance. The assignee is entitled to collect the proceeds of the policy from the company. If he is a creditor, he is entitled to retain the amount of his debt for his own use, and such sums as he may have disbursed for the purpose of keeping the policy alive. The surplus he is bound to hand over to the representatives of the person whose life is insured. The insurable interest of a creditor is thus determined not at the date of the contract, as under the English Statute, but at the time when the policy becomes a claim. The same rule is applied whether a

[a] 72 Law Times Reps. 140.

[b] See also *Collett* v. *Morrison*, 9 Hare 162; *Scott* v. *Roose*, Longfield and Townsend's Irish Reports, 54; *Hodson* v. *Observer Life Ass. Soc.* 8 E. & B. 40.

[c] *Evans* v. *Bignold*, L. R., 4 Q. B. 622.

[d] *Warnock* v. *Davis*, 104 U.S. 775; *Equitable Life Ins. Co.* v. *Hazlewood*, 16 Am. St. R. 893, and note by Reporter, p. 906.

In America it seems to be held that an express provision in a policy of insurance that the company shall not be liable for a loss until the premium is actually paid, is waived by the unconditional delivery of the policy to the assured without actual payment of the premium. Such delivery implies that credit is given for the premium, and accordingly a loss which occurs after delivery of the policy is covered by the insurance. The last case upon the subject is *Farnum* v. *Phœnix Insurance Company.*[a]

On the same principle of implied waiver, an acknowledgment of the payment of the premium in a policy which has been issued to the assured will preclude the company from claiming a forfeiture on the ground of non-payment of the premium.[b]

(*b*) *Renewal Premiums.*—When the insurance is conditioned on the payment by a fixed date of renewal premiums, the condition is strictly enforced.[c] It is not an excuse that the assured was prevented by sickness or by death from paying the premium in time. The necessity for strict compliance with this condition may, however, be waived by the company, either expressly, or by such acts or conduct on the part of its responsible officials as justify the assured in assuming that strict compliance will not be required.[d] Nor will the forfeiture be incurred if the delay in payment is due to the act or omission of the company. When, for instance, a company is in the habit of giving notice that renewal premiums are due, policy-holders may be justified in assuming that such notice will be given, and their policies not invalidated, in the absence of notice, by failure to pay the premium within the term fixed in the policy.[e] On the same principle, if the assured has agreed with the company that the annual share of the profits or dividends to which he is entitled shall be deducted from the annual premium, and if the usual practice of the company is to give notice to the assured of the balance of the premium due after the profits have been deducted, the company cannot avail themselves of a forfeiture for non-payment of the premium within the time stipulated in the policy if they have failed to give the usual notice, and have returned no answer to a request for information by the assured as to the amount due until after the time for payment has elapsed.[f]

In another case, where the policy remained in the hands of the

[a] 1890; 17 Am. St. Reps. 233.

[b] *Southern Life Insurance Company* v. *Booker*, 24 Am. R. 344.

[c] *Phœnix Company* v. *Sheridan*, 1860, 8 H. L. C. 745.

[d] *Insurance Company* v. *Eggleston*, 96 U.S. 572, 579; *Union Central Life Insurance Company* v. *Pottker*, 31 Am. R. 555.

[e] *Insurance Company* v. *Eggleston*, 96 U.S. 572.

[f] *Meyer* v. *Knickerbocker Life Insurance Company*, 29 Am. R. 200; 73 N. Y. 517; and note by Reporter, *Eddy* v. *Phœnix Mutual Life Insurance Company*, 23 Am. St. R. 17.

before it was tendered, the proposer met with an accident which rendered his life less insurable. It was held that the company were not bound to accept the premium or to issue a policy. The offer to insure at the premium named was construed as conditioned upon the truth of the statements by the applicant in the proposal, and therefore as not binding if, before acceptance of the offer to insure by tender of the premium, the risk, as defined by these statements, had materially altered.

In these cases the proposal and acceptance were held to constitute at most an agreement to insure provided the risk remained the same when the agreement came to be carried out. Where this is the effect of the negotiations, the proposer must be held to warrant his state of health, not merely at the date of the proposal, but up to the date when the premium is tendered, and, even apart from a warranty, he is bound to disclose any change of circumstances which may affect the risk.[a] But if there is no express provision in the acceptance that the insurance shall not begin till the premium is paid or until the policy is issued, or other suspensive condition, an acceptance of a proposal for insurance, definite as to the risk and premium, would, it is thought, be held to constitute an agreement to insure the risk as at the date of the acceptance. This construction was adopted by the Supreme Court of the United States in a case dealing with fire insurance. It was held that a proposal to insure a mill against fire, if unconditionally accepted at a definite premium, was binding on the company although the mill was burned before the policy was issued or the premium paid.[b] The distinction between this decision and that in *Canning* v. *Farquhar* depends not on the fact that one dealt with fire and the other with life insurance, but upon the different construction put upon the negotiations between the parties. In the one case the agreement to insure was unconditional, and was held to refer to the risk as it existed at the date of the acceptance; in the other the acceptance was conditional, and was held to refer to the period when the condition was carried out by tender of the premium.

Which construction will be adopted will depend on the terms of the proposal and acceptance and on the surrounding circumstances of the case. The question is not of very great practical importance, as most companies qualify their acceptances by a condition similar to that in Canning's case, and the rule laid down in that case will generally apply. Such a condition will not, however, be presumed.[c]

[a] See *British Equitable Insurance Company* v. *Great Western Railway*, 38 L. J. Ch. 314, where this rule was expressly stated as a condition of acceptance.

[b] *Eames* v. *Home Insurance Company*, 94 U.S. 621, 626 *et seq.*

[c] *Kelly* v. *London and Staffordshire Fire Insurance Company* [1883], 1 C. & E. 47.

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[f] *Meyer* v. *Knickerbocker Life Insurance Company*, 29 Am. R. 200; 73 N. Y. 517; and note by Reporter, *Eddy* v. *Phœnix Mutual Life Insurance Company*, 23 Am. St. R. 17.

company, the assignee applied at the head office for information as to the date at which premiums fell due. He was told by an official of the company that notice would be sent to him when the premium became payable, according to the usual practice of the company. No notice was sent, and the time expired within which the premium should have been paid. In an action on the policy by the assignee, the jury found that there had been a promise on the part of the company by a duly authorised agent to give notice of the date when the renewal premium fell due; and that such notice had been intentionally withheld by the company with the purpose of procuring a forfeiture of the policy, the life assured being in bad health. It was held by the Supreme Court of New York that the company could not insist on the forfeiture, and the rule was laid down that when by the terms of a contract one party is entitled to a forfeiture against the other, in an event which is within the control of the other, he is not entitled by representations or conduct, wilfully made or adopted for that purpose, to put the other off his guard, and induce him to refrain from taking steps which would obviate forfeiture. A forfeiture so induced will not be given effect to if the party in technical default, on notice of the alleged forfeiture, performs or offers to perform the omitted act.[a]

In the English case of *Simpson* v. *The Accidental Death Insurance Company*,[b] the company intentionally refrained from giving notice to the executors of the assured that the last premium due before his death had not been paid. This information was only communicated after the days of grace allowed for the payment of the premium had expired, within which period the assured had died. The Court held the company were not precluded, by their failure to give the information in question, from pleading the failure to pay the premium within the stipulated time, and from repudiating liability upon the policy. It was held that there must be some overt act or representation on the part of the company justifying the belief that the premium had been paid, when in point of fact it was not paid. Mere silence was not sufficient to prevent the company founding on the failure to pay the premium. This decision is quite reconcilable with the American cases cited. In these cases the insurers had licensed a certain mode of payment of premiums, and had induced the assured to rely upon such practice being continued. The insured was induced by the overt act or representation of the company's official to believe that a departure from the strict rule in the policy would not be visited by forfeiture. In the English case, on the other hand, the company had refrained from giving notice of the non-payment of the

[a] *Leslie* v. *Knickerbocker Life Insurance Company*, 63 N. Y. 27.
[b] 2 C. B. (N. S.) 257.

premium, but there was no positive representation that it had been paid, or promise, actual, or implied from a uniform course of dealing, that notice would be given. All the same, it seems doubtful whether, in simply maintaining silence, the company acted with that good faith which is required on the part of both parties to a contract of insurance. The decision in the case only went partially on the ground that the company were not precluded by their conduct from denying the payment of the premium within the days of grace; the main ground of the decision was that, under the terms of the policy, the company would not have been bound to accept the premium after the death of the assured, even if payment had been tendered within the stipulated period.

It is a common practice among insurance companies, when intimating that a renewal premium is about to fall due, to give express notice that the company is not bound to give such intimation, and that the want of it is not to be taken as an excuse for non-payment. The effect of an express declaration of this kind would, it is thought, be to prevent the assured founding upon the absence of notice in any particular case, unless perhaps he were able to show that the company had acted fraudulently or in bad faith in withholding the notice.

In the case of industrial offices payment of the premiums is usually made to local agents, but such agents are not presumed to have any authority to contract on behalf of the company or to waive any forfeiture in the policy. The assured is not therefore entitled to rely upon any undertaking given by the agent on the part of the company, unless he is satisfied that the agent has authority to bind the company. Such authority may be shown either to be contained in the written instructions to the agent, or it may be implied from the fact that the agent is in practice allowed by the company to exercise it.[a] In this country the agent's authority is not presumed to include a power of entering into contracts on behalf of the company, or of binding the company by receipt of a premium when it is overdue. If such authority is averred by the assured against the company, the onus of proof is upon him.[b]

The business of ordinary local agents in this country is confined to receiving communications from the assured and forwarding them to the head office. They are held out to the public as the persons to whom proposals for insurance are to be made. All communications made to the agent are therefore held to be made

[a] *Montreal Assurance Company* v. *M'Gillivray*, 13 Moore's P. C. C. 119-124; *Union Central Life Insurance Company* v. *Pottker*, 31 Am. R. 555.

[b] *Linford* v. *Provincial Horse and Cattle Insurance Company*, 34 Beavan 291; *Barker* v. *North British Insurance Company*, 6 W. S. 323; *Insurance Company* v. *Mowry*, 96 U.S. 544.

to the company, and the company is precluded from denying that they are aware of what has been communicated to their agents, or what their agent knows.

In order to define the position of agents, conditions are sometimes inserted in policies. These conditions provide that the agents of the company shall have no power to contract, or to waive performance of any of the conditions in the policy, and so far they express the common law. If, however, they go on to provide that the company shall not be bound by any representations made by persons submitting proposals for insurance to their agents, or by other communications properly made to them by the assured, they are thought to be invalid. A principal cannot appoint an agent to do certain business on his behalf, and at the same time claim that he is not bound by his agent's actings within the scope of the business intrusted to him. If, therefore, an agent, although not authorised to enter into any agreement on behalf of the company, is held out to the public as the means of communication between applicants for insurance and the company, or as the person to whom premiums are to be paid during the life of the policy, all communications properly made to the agent are held to be made to the company, and it is thought that this rule would not be affected by provisions in the policy of the kind referred to.

The limits of a company's liability for its agents are brought out very clearly in the following decisions:—

In the first of these, the case of *Acey* v. *Fernie*,[a] the renewal premium on a life policy became due on the 15th of March, but it was not paid until the 12th of April, at which date the local agent of the company, through whom the insurance had been effected, and to whom the premium was directed to be paid, gave a receipt for the amount of the premium.

The instructions given by the company to their agent were that the premiums on every life policy must be paid within fifteen days from the time of its becoming due; that if not paid within that time he was to give immediate notice to the head office of the fact, and that in the event of his omitting to do so, his account would be debited for the amount after the days of grace had expired. No notice was given by the agent to the company of the non-payment of the premium within the fifteen days, and it was therefore entered in the company's books as paid on the 15th of March, and the agent debited with the amount. It was held, first, that the mere debiting the agent with the premiums could not be considered as a payment to the company by the assured; secondly, that, as the agent had no authority to contract for the company, the fact of his receiving the money after the expiration of the days of grace, and the entry in the company's books, debiting him

[a] 7 M. & W. 151.

with the amount, were no evidence of a new agreement between the company and the assured. If the overdue premium had been paid to the head office instead of to the agent—the most favourable supposition for the assured—the company would not have been bound to receive it, and the agent had no power to waive the forfeiture on behalf of the company.

The same rule is illustrated in the case of the *British Industry Life Insurance Company* v. *Ward*.[a] There a premium was to be paid every succeeding Monday from the date of the policy. On a notice attached to the form for the receipt of the weekly premium, delivered to the assured, it was provided that any member allowing his payment to fall more than four weeks in arrear should be excluded from all benefit. The agent of the company, on delivering this form and the indorsed notice to the assured, stated to him that it would be sufficient if the premiums were paid when he called for them. This was contrary to his private instructions, which were that he was to return as lapsed all policies the premiums on which were four weeks in arrear. The premiums were allowed to run into arrear during eleven weeks, and were then called for and received by the agent, who granted a receipt for them, and did not return the policy to the head office as lapsed. It was held that, in the absence of proof that the agent had any real or apparent authority to waive the forfeiture, the policy had lapsed and the company were not liable. Had the assured, however, proved that the practice of allowing premiums to lie over till called for had been sanctioned by the company, either expressly or by allowing it to be done, a different result would have been reached.[b]

These cases are authorities for the proposition that an ordinary local agent of an insurance company, even if intrusted with the duty of receiving the premiums, has no authority to waive a forfeiture incurred by a failure to pay them within the period fixed in the policy. Except in the case of industrial offices, there is no general practice of authorising agents to receive premiums; the usual rule being that all payments of money must be made to the head office or to a branch office of the company. The duties of local agents are in general confined to receiving proposals for insurance or other communications, and it is in relation to this business that the company are bound by their actings.

This is illustrated by the case of *Wing* v. *Harvey*.[c] In this case the policy contained a condition that if the assured went beyond

[a] 1856, 17 C. B. 644.

[b] General rule stated in *Montreal Assurance Company* v. *M'Gillivray*, 13 Moore's P. C. C. 119-124; *Insurance Company* v. *Norton*, 96 U.S. 234.

[c] 1854, 5 De. G. M. & G. 265. See also *Bawden* v. *London, Edinburgh and Glasgow Assurance Company*, L. R. [1892], 2 Q. B. 534.

The effect of this condition is not to continue the insurance in force, but to give the insured the right of renewing the policy within the period specified, although his life has become less valuable. In this respect the position of the insured is more favourable than if there were no such clause, and it is also more favourable than his position under an acceptance of the original proposal.[a]

It may, however, be doubted if any insurance company—in this country at least—continues to have a policy condition of this kind. The case of Pritchard called attention to an obvious danger, and the companies hastened to reassure the public that the benefit of their policies would not be lost if death occurred within the days of grace and before payment of the premium. If a condition like that supposed exists now at all, it is safe to say that no company in the kingdom would take advantage of it.

Most policies, besides providing for days of grace, contain a further condition, that if the assured fails to pay the renewal premium within the days of grace, the policy may be revived within a certain further period, on satisfactory proof of the health of the assured, and on payment of a certain fine. If the company, without making any inquiries as to the health of the assured, renew the policy, in ignorance of the fact that the assured is dead, they are not held bound, because the renewal, like the original policy, presumes the existence of a living person as the subject of the insurance. Accordingly in Pritchard's case, where the policy, besides providing for days of grace, contained this condition as to subsequent renewal, it was held that the acceptance of a renewal premium after the days of grace had expired (although it might have amounted to a waiver of the condition as to the continued health of the life assured, if he continued alive), did not bind the company, where the risk had terminated by the death of the assured before the renewal premium was paid, and where it had been accepted in ignorance of this fact.

It is usually provided in modern policies that a failure to pay the renewal premiums within the days of grace, or the further period provided in the condition just dealt with, shall not forfeit all benefit under the policy. These concessions either take the form that the policy will be renewed, on proof that the assured's state of health is not impaired, and on payment with interest of overdue premiums, or that the surrender value of the policy will be paid or applied, if sufficient for that purpose, to the payment of the overdue premiums, such payment to become a first charge upon the proceeds of the policy. Sometimes the surrender value is defined, as for instance when the engagement is to pay such pro-

[a] *Pritchard* v. *The Merchants' Life Assurance Soc.*, 1858, 3 C. B. (N. S.) 622, opinion of Willes, J., 642.

(*c*) *Days of Grace.*—It is usual to allow a certain period, after the date of payment fixed in the policy, as days of grace within which the premium may be paid, but the forms of condition by which this concession is given differ widely in their effect. Their interpretation may be modified by the terms of the notices intimating that renewal premiums are due, and perhaps also by the terms of the companies' prospectuses. There would seem, however, to be only two possible constructions of such provisions. Their effect may either be to keep the insurance in force during the days of grace, or merely to provide that the policy may be renewed during the days of grace for another period, upon the same conditions as before, and without further examination as to health. The first form of condition usually expressly provides that the premium may be paid during the days of grace, and that the insurance shall continue in force until their expiry. Under this condition the insurance runs on from one period to the next without any break, if the premium be paid within the specified period, and the company would be liable although the insured died within the days of grace before tender of the premium. The principle explained as applicable to an original insurance does not apply, because in this case the insurance has never lapsed, and does not require to be renewed. It is not a new insurance upon a dead man, but one continued up to the termination of the risk, and valid and existing at the time the insured dies. If the last premium is not paid, the sum payable would be the sum in the policy under deduction of the unpaid premium. It would not, it is thought, be necessary for the representatives of the insured to tender the premium within the days of grace, because they are entitled to have it set off against the sum due in the policy. The reason is that, at the termination of the risk, there are two immediately prestable obligations—one on the part of the company for the sum insured, and the other on the part of the beneficiaries for the unpaid premium. Such debts are discharged by compensation, leaving a balance due in favour of one party or the other. In many policies this rule is expressly stated.

The other form of condition is usually expressed negatively, and provides that the policy shall be void if the premiums for renewal are not paid within a specified period. Under such a condition, the premium must be paid, not only within the days of grace, but also within the lifetime of the person whose life is insured, so that if the life fall within the days of grace, before the premium is paid or tendered, the insurers are not afterwards obliged to receive it, or to pay the sum in the policy under deduction of the premium.[a] The same principle applies as in the case of the original contract; it is a mere agreement to renew, which cannot be enforced if, when it comes to be fulfilled, there is no longer a life in existence to insure.

[a] *Want* v. *Blunt*, 12 East 183.

applies when the person dying by his own hand is aware of the physical consequences of his act, although his reason may be so impaired that he is not aware of its moral consequences. In other words, the condition applies when the insured takes his life voluntarily, although at the time he may be of unsound mind. If, on the other hand, the unsoundness of mind is such as to confuse the senses, or to produce a state in which voluntary action is impossible, the condition does not apply. This construction is established in two leading cases. The first of these is the case of *Borradaile* v. *Hunter*.[a] In that case the condition was that the policy should be void in case the assured should die by his own hands, or by the hand of justice, or in consequence of a duel. The assured threw himself into the Thames and was drowned. Upon an issue whether the assured died by his own hands, the jury found that he "voluntarily" threw himself into the water, knowing at the time that he would thereby destroy his life, and intending thereby to do so; but that at the time of committing the act he was not capable of judging between right and wrong. It was held that the policy was void, as the exception included all acts of voluntary self-destruction, and was not limited to acts of felonious suicide. The object of the clause was said to be to exclude liability in those cases where suicide had been committed to accelerate the claim upon the policy. It was held to include the case in question, because a person might intentionally kill himself for the purpose of giving his relatives an immediate benefit under the policy, although he might be so deranged in intellect as not to appreciate the wrongful nature of the act. It was pointed out that the object of the exception would be served by reducing the claim upon the policy in the case of suicide to the amount for which the policy could have been sold immediately before the death of the insured, or to its surrender value. If this were done, there would be no advantage gained by self-destruction.

The expression used in the verdict in this case, "incapable of distinguishing between right and wrong," is very ambiguous: it may either mean that the person to whom it is applied is incapable of judging between right and wrong on any occasion, or on any subject, or it may mean that on the occasion in question he was incapable of judging between right and wrong, owing to the difficulty of the occasion or some other exceptional cause. In the first case the person is insane; in the second he is not.

In the case of *Schwabe* v. *Clift*[b] the condition was that every policy effected by a person on his or her own life should be void, if such person should "*commit suicide*, or die by duelling or the hand of justice." The insured died in consequence of having

[a] 5 Man. & G. 639.

[b] 2 Car. & K. 134, and *Clift* v. *Schwabe*, 3 C. B. 437.

portion of the sum insured by the lapsed policy, as the premiums paid bear to the total premiums due on the policy.

These conditions are sometimes merely permissive, and are taken verbatim from the articles of association or deed of settlement of the company, and are merely inserted for the information of the assured. In other cases they take the form of an obligation binding on the company, which the insured could enforce. By a statute of New York State, it is declared illegal for any insurance company to forfeit a policy on which premiums have been paid, for failure to pay subsequent premiums, without giving the insured the surrender value of his policy.

(3) THE CONDITIONS DEALING WITH EXCEPTED RISKS.—Certain risks are excepted from most life policies, either in respect of local limits for the residence of the life insured, or of his occupation, or of the cause of his death. Under the first of these exceptions it is provided that the insurance shall be either suspended or avoided if the insured shall reside or travel within the limits specified. When this provision creates a forfeiture, it will be strictly enforced, and a residence, however short or whatever its cause, will avoid the policy. It is usually provided, however, that this restriction may be removed upon payment of an extra premium, and, if the policy has been assigned, that it shall not be avoided, if the assignee, as soon as he becomes aware that the condition has been transgressed, informs the office of the fact, and pays the extra premium which may be demanded.

Among prescribed occupations are military service, seafaring, the preventive service, gold searching, and the liquor traffic. Policies generally give express intimation that these occupations may be engaged in without avoiding the policy if licence is obtained from the directors, and an extra premium paid. Military service implies that the assured shall be subject to military law, and a mere clerk or servant attached to the War Office or to the Army, is not a military servant in the sense of the exception.

In regard to the third class of exceptions, those depending on the cause of death, the provision usually is that if the assured shall commit suicide, or die by duelling, or by the hand of justice, the policy shall be void. It has been held that the expressions "suicide," "self-destruction," or "dying by his own hand," in a clause excepting such risks from a policy, have the same meaning, but none of these expressions are construed as including every possible case in which a man takes his own life. When, for instance, he takes his life during delirium or during an epileptic fit, or when he is under an insane delusion as to the instrument which he has in his hands, and supposes it to be something harmless. In construing any of the expressions, the English rule is that the exception

applies when the person dying by his own hand is aware of the physical consequences of his act, although his reason may be so impaired that he is not aware of its moral consequences. In other words, the condition applies when the insured takes his life voluntarily, although at the time he may be of unsound mind. If, on the other hand, the unsoundness of mind is such as to confuse the senses, or to produce a state in which voluntary action is impossible, the condition does not apply. This construction is established in two leading cases. The first of these is the case of *Borradaile* v. *Hunter*.[a] In that case the condition was that the policy should be void in case the assured should die by his own hands, or by the hand of justice, or in consequence of a duel. The assured threw himself into the Thames and was drowned. Upon an issue whether the assured died by his own hands, the jury found that he "voluntarily" threw himself into the water, knowing at the time that he would thereby destroy his life, and intending thereby to do so; but that at the time of committing the act he was not capable of judging between right and wrong. It was held that the policy was void, as the exception included all acts of voluntary self-destruction, and was not limited to acts of felonious suicide. The object of the clause was said to be to exclude liability in those cases where suicide had been committed to accelerate the claim upon the policy. It was held to include the case in question, because a person might intentionally kill himself for the purpose of giving his relatives an immediate benefit under the policy, although he might be so deranged in intellect as not to appreciate the wrongful nature of the act. It was pointed out that the object of the exception would be served by reducing the claim upon the policy in the case of suicide to the amount for which the policy could have been sold immediately before the death of the insured, or to its surrender value. If this were done, there would be no advantage gained by self-destruction.

The expression used in the verdict in this case, "incapable of distinguishing between right and wrong," is very ambiguous: it may either mean that the person to whom it is applied is incapable of judging between right and wrong on any occasion, or on any subject, or it may mean that on the occasion in question he was incapable of judging between right and wrong, owing to the difficulty of the occasion or some other exceptional cause. In the first case the person is insane; in the second he is not.

In the case of *Schwabe* v. *Clift*[b] the condition was that every policy effected by a person on his or her own life should be void, if such person should "*commit suicide*, or die by duelling or the hand of justice." The insured died in consequence of having

[a] 5 Man. & G. 639.
[b] 2 Car. & K. 134, and *Clift* v. *Schwabe*, 3 C. B. 437.

LECTURE II.

POLICIES OF INSURANCE AS SECURITIES AND IN TRUST.

(*Delivered January 17th*, 1895.)

THERE are various ways in which life policies may be made available as securities. An existing policy upon the debtor's life and in the debtor's name may be assigned to the creditor, or a policy may be taken out in the creditor's name, in which case no assignment is necessary. Unless, however, the policy has already acquired a value, the security is defective if there is no additional security for the payment of the premiums by the debtor. Consequently, policies are most frequently used as supplementary to other securities. For example, an annuity upon the debtor's life, or on some other life, is assigned to the creditor, of sufficient amount to cover the interest on the loan and the premiums upon a policy upon the annuitant's life. The policy secures the repayment of the principal sum when the annuity lapses. In the same way, a reversionary interest may be assigned along with a policy upon the life on whose survivance the reversion depends. In the latter case it is not unusual to burden the reversion not only with the principal, but with the whole or a part of the interest and premiums upon the policy. If this is done, there seems no reason, as I stated in my last lecture, why the policies should not cover the interest and premiums for which credit is given as well as the principal.

A policy on a man's own life, and in his name, may in the same way be assigned to trustees by a separate deed declaring the purposes of the trust; or, on the other hand, under what are called settlement policies, the trust purposes may be declared and the trustees named in the policy itself. In some few cases the insurance company agrees to act as trustee and to hold the fund provided by the policy for the benefit of any persons named as beneficiaries in the policy. The most common form of settlement policies are those under the Married Women's Policies of Assurance (Scotland) Act, 1880, and the English Married Women's Property Act, 1882. Under these Acts, the insurance office does not act as trustee. The trustee is either appointed by the insured, or, if he fails to appoint, the trust vests in him and in his personal representatives.

The only beneficiaries under the trust authorised by the statutes are the husband or wife and the children of the insured.

1. *Assignment of Policies in Debtor's Name.*—I propose, in the first place, to consider the requisites of a valid assignment. The question of the right to a policy may obviously arise between different parties: between the assignor and the assignee; between different assignees; between an assignee and the trustee in a sequestration; or lastly, between the assignee and the insurance company. In the last case, the only interest of the insurance company is to obtain a valid and effectual discharge of their obligation; and it is to the conditions under which such a discharge can be given by an assignee that I mean mainly to direct your attention at present.

For any assignment to have this effect there are four conditions requisite. The first requisite is that the assignment should be in writing, either separate or indorsed on the policy. In England, deposit of the policy, in consideration of an immediate advance, constitutes an equitable assignment, and, like the Scottish written assignment, gives the assignee a valid right as against the assignor and his representatives, although in both countries intimation of the assignment is necessary to the completion of a valid title in a question with other assignees.

In Scotland an obligation or debt, such as a policy of insurance, cannot be assigned by a transfer of the document of title. In the *United Kingdom Life Assurance Company* v. *Dixon*[a] it was held that a deposit of a policy conferred no right upon the holder, or those claiming through him, to the contents of the policy, in competition with an executor of the assignor who had made up a title by confirmation.

If the assignment is made in England, the law of that country determines its validity. Thus in the case of the *Scottish Provident Institution* v. *Cohen and Company*,[b] the sum due under the policy was claimed by the trustee on the assured's sequestrated estate and by the defenders, who were money-lenders in Newcastle-on-Tyne, and with whom the policy had been deposited in security of an advance to the assured. The estate of the deceased was sequestrated several months after notice of the equitable assignment had been given to the company by the defenders. It was held that the assignment, being valid by the law of England, and having been followed by notice to the company prior to the date of the sequestration, conferred upon the defenders a title to the policy which was preferable to that of the trustee.[c]

The second requisite is that the title under which the assignee

[a] 16 Shaw 1277. [b] 16 Rettie 112.

[c] See also *The Scottish Provident Inst.* v. *Robinson and Newett*, 1892, 29 S.L.R. 733.

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the discharge, to be valid, must be concurred in by all the parties interested. Sometimes this authority is conferred by a condition in the policy itself. Such a condition provides that "the holder of the policy as mortgagee or trustee may (unless to the knowledge of the company he is prohibited from doing so by the terms of his mortgage or trust), surrender the policy to the company for cash or any other consideration, and such surrender, so made, shall effectually discharge the company from liability under the policy after the date of such surrender."

Prior to the Policies of Assurance Act of 1867, the assignee, even if he had the power to grant a discharge, could not in England have sued upon the policy in his own name, but would have had to obtain the consent of the assignor or his representatives to use his or their name in any action against the company. He is still in this position unless the title under which he holds gives him expressly, or by implication, the right to grant a discharge. Even before the Act, an assignee in Scotland, if he were empowered by the assignor to receive and discharge the sum due upon the policy, could have sued in his own name, so that in this respect the Act made no change upon the law of Scotland.

In England, as we have seen, the deposit of a policy in security of an immediate advance, operates as an assignment, but it does not give the assignee any right, under the Policies of Assurance Act of 1867, to sue in his own name or to discharge the company, even if the conditions as to notice of the assignment required by that Act are fulfilled. The company are therefore not bound, and are not in safety, to pay to one who holds as a mere depositary, and has no written title, even if they have no notice of other claims, and no representatives of the assured have made up a title. In such a case an application to the Court is necessary to secure for the company a valid discharge, unless the representatives of the assured make up a title and concur in the discharge by the holder of the policy. The necessity for an application to the Court therefore arises when the representatives have no interest to make up a title and refuse to do so. In that case the costs of the necessary proceedings to obtain a valid discharge must be paid by the holder of the policy. Nor is the company liable for interest upon the sum due under the policy till the date of the decree authorising them to pay. It is only when a debtor is in default in not paying at a certain date that he is liable in interest. He is not in default until the person claiming payment is in a position to give him a valid discharge. These rules were laid down in the cases of *Crossley* v. *The City of Glasgow Life Insurance Company*,[a] and in *Webster* v. *The British Empire Life Assurance Company*.[b] They would seem to apply equally to the case where the

[a] 4 Ch. D. 421. [b] 15 Ch. D. 169.

holds should, either expressly or by implication, give him power to discharge the company on payment to him of the sum due in the policy.[a] If the assignment is absolute, such a power is implied; and in England, by statute, where a mortgage is in writing, and subsequent to the Conveyancing Act of 1881, a clause to this effect is also implied; but this provision does not extend to Scotland, and therefore it is advisable that the clause should be expressed in Scottish assignations in security.[b]

The question was considered in a recent case in Ireland in reference to an assignment prior to the Conveyancing Act of 1881. It was there held that when a policy is assigned in security, but without any provision empowering the assignee to grant a valid discharge to the company, the company is not bound to pay the sum due upon the policy except upon the joint receipt of the assignor and assignee. It was pointed out that the right to grant a valid discharge, conferred by section 1 of the Policies of Assurance Act of 1867, is limited to cases in which the assignee has received from the assignor the right to grant a discharge; and accordingly, that when there is no special provision in the mortgage deed conferring such a right, the company is not bound to pay upon the receipt of the assignee alone, but is entitled to demand that the assignor should join in the discharge.[c]

By the English Conveyancing Act, 1881, a trustee's discharge is also made sufficient,[d] and by the Trusts (Scotland) Act, 1867,[e] trustees falling within the provisions of the Act are empowered, *inter alia*, "to uplift, discharge, or assign debts due to the trust estate," unless such acts are at variance with the terms or purposes of the trust.

The English Conveyancing Act of 1881 also authorises a mortgagee to sell the security in the same way as if the mortgage deed contained a power of sale, provided a contrary intention is not expressed.[f] This provision only applies to mortgages by deed, and subsequent in date to the commencement of the Act. In Scotland there is no statutory power of sale, and the right either to sell or surrender the policy must be conferred by the mortgage deed. In the case of trusts, the Act of 1867 authorises the trustee to apply to the Court for power to sell when such power is not conferred by the terms of the trust.[g] Where these statutes do not apply, and where no special mandate to sell or surrender is conferred by the deed creating the trust or mortgage,

[a] Policies of Assurance Act, 1867 [30 and 31 Vict. c. 144], s. 1.
[b] 44 and 45 Vict. c. 41, s. 22; Bell's *Lectures on Conveyancing*, vol. i. 331.
[c] *Tench* v. *Eykyn*, 18 L.R. (Ireland) 45.
[d] 44 and 45 Vict. c. 41, s. 36.
[e] 30 and 31 Vict. c. 97, s. 2.
[f] Section 19.
[g] Section 3.

the discharge, to be valid, must be concurred in by all the parties interested. Sometimes this authority is conferred by a condition in the policy itself. Such a condition provides that "the holder of the policy as mortgagee or trustee may (unless to the knowledge of the company he is prohibited from doing so by the terms of his mortgage or trust), surrender the policy to the company for cash or any other consideration, and such surrender, so made, shall effectually discharge the company from liability under the policy after the date of such surrender."

Prior to the Policies of Assurance Act of 1867, the assignee, even if he had the power to grant a discharge, could not in England have sued upon the policy in his own name, but would have had to obtain the consent of the assignor or his representatives to use his or their name in any action against the company. He is still in this position unless the title under which he holds gives him expressly, or by implication, the right to grant a discharge. Even before the Act, an assignee in Scotland, if he were empowered by the assignor to receive and discharge the sum due upon the policy, could have sued in his own name, so that in this respect the Act made no change upon the law of Scotland.

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[a] 4 Ch. D. 421. [b] 15 Ch. D. 169.

assignation in security is in writing, but does not contain either expressly or by statutory implication the power to grant a discharge.

The third requisite of a complete title in the assignee is that notice of the assignment should be given in writing to the head office of the insurance company. This is required by section 3 of the Policies of Assurance Act of 1867, which is as follows:— "No assignment made after the passing of this Act of a policy of life assurance shall confer on the assignee therein named, his executors, administrators, or assigns, any right to sue for the amount of such policy, or the moneys assured or secured thereby, until a written notice of the date and purport of such assignment shall have been given to the assurance company liable under such policy, at their principal place of business for the time being, or, in case they have two or more principal places of business, then at some one of such principal places of business, either in England, or Scotland, or Ireland; and the date on which such notice shall be received shall regulate the priority of all claims under any assignment; and a payment bonâ fide made in respect of any policy by any assurance company before the date on which such notice shall have been received shall be as valid against the assignee giving such notice as if this Act had not been passed."[a]

Almost no change is made by this section upon the law of Scotland; notice of the assignment of a debt always required to be given to the debtor or holder of the fund assigned, and the priority of claims by different assignees upon the fund depended upon the date of notice. But prior to the Act, notice might have been given in various ways; now, the method prescribed by statute must be followed. There is no decision on the question what constitutes "written notice of the date and purport of the assignment," but it is thought that intimation in one or other of the methods prescribed by the Transmission of Moveable Property (Scotland) Act, 1862,[b] would fall within these terms. Under that Act, which is expressly made applicable to the assignation of policies of assurance issued by Scottish companies, intimation may be given by the transmission to the company of a certified copy of the assignation. The company would thus receive intimation in writing of the date and purport of assignation, which is all that is required by the Act of 1867.

Section 6 of the Act provides that the company shall duly acknowledge notice of an assignment.

In England a much greater change was made in the law. Prior to the Act mere verbal notice to the insurance company would have been sufficient. Now the rights and duties of the company as regards notice depend on the provisions of the statute alone.

[a] 30 and 31 Vict. c. 144, s. 3. [b] 25 and 26 Vict. c. 85, s. 2.

It has accordingly been held that verbal notice of an assignment is not sufficient to give a claim against the company in competition with that of an assignee who has given written notice in terms of the Act.[a] The company is entitled to disregard the verbal notice, and pay to the assignee who has fulfilled the conditions required to complete his title and give a valid discharge. On the other hand, when the company have written notice of a prior incumbrance, they are not bound or entitled to pay to a subsequent assignee from the assured, although no claim is made by the first assignee. The claimants under the second assignment are bound to show that the prior incumbrance has been satisfied or discharged. A mortgagee giving notice in terms of the Act is entitled to sue in his own name, and therefore the company would not be safe in paying to a subsequent assignee. Nor is the company bound to find out the state of the prior incumbrance. The expense of making his title clear by showing that the prior incumbrance has been discharged, must be borne by the claimant.[b]

The provision as to priority of notice in the third section of the Act only applies in regard to questions with the company. Questions of priority between assignees are determined by the common law. Hence when a first incumbrancer on a policy had failed to give notice in terms of the Act, it was held that a second incumbrancer, who knew of the first incumbrance, could not, in a question with the prior incumbrancer, acquire a preference by giving written notice to the company.[c] On the same principle, an assignment not intimated at all would be valid against the assignor himself, although it would, independently of the statute, confer no right in competition with subsequent assignees in good faith. At common law, in England as well as in Scotland, notice is necessary to complete the assignee's title. Its effect is to prevent the debtor paying to the original creditor, and also to protect subsequent assignees from dealing with the assignor in ignorance of the limitation upon his right.

The notice to be given to the company is required to set forth "the date and purport" of the assignment. The interpretation of the term "purport" is not very clear, but it must at least include the identification of the policy assigned, and the name of the assignee, which, along with the date, would seem to be all that is essential to the notice. It may therefore be doubted whether the term necessarily includes the nature of the assignment, whether it is absolute, or in trust, or by way of security. It is true that, at a later stage, the company are entitled to this infor-

[a] *In re* Young, 25 L. R. (Ireland), 372, 386.
[b] *In re* Haycock's Policy, 1 Ch. D. 611.
[c] *Newman* v. *Newman*, 28 Ch. D. 674, 680.

mation, because the proper stamp-duty in each of these cases is different, and the company are, by a statute to which I shall presently refer, liable to pay the stamp and penalty, if they pay the sum in the policy to the assignee upon an imperfectly stamped assignment. But at the stage of intimation, all that is necessary for the assurance company to know is that on a specified date a certain policy was assigned by A to B. The company are not called upon at that stage to inquire what is the extent of B's right, nor whether the stamp-duty is sufficient, nor even whether the deed is validly executed. It is only when they are called upon to make a payment in respect of the policy that they are entitled to make inquiries or to raise questions. Until then the responsibility rests not on them, but on the party taking the assignment, to see that the deed is in every way complete.

The concluding words of section 3, providing that "a payment *bonâ fide* made in respect of any policy by any Assurance Company before the date on which such notice shall have been received, shall be as valid against the assignee giving such notice as if the Act had not been passed," would seem to contemplate the case of the company having *bonâ fide* accepted a surrender of the policy, or having paid away the sum due upon it, before written notice of the assignment. The effect of the limitation that such payment shall be as valid against the assignee giving such notice as if the Act had not been passed, is to leave any ground of challenge open to the assignee which he could have urged against the payment by the company prior to the Act.

In England an assignee in bankruptcy must give notice like any other assignee, but in Scotland the confirmation of the trustee in a sequestration operates as an intimated assignation of all debts due to the bankrupt.[a] Accordingly, in England an insurance company is discharged if it pay to any of the parties entitled under the terms of the policy or under an intimated assignment, without notice of the bankruptcy. The same rule applies if the company pay the surrender value of the policy in good faith to the bankrupt.[b] In Scotland the company is held to have notice of the bankruptcy, and is not in safety in paying to an assignee of the bankrupt in terms of a notice subsequent to the confirmation of the trustee. The company are bound to inform themselves of the sequestration, and to treat the confirmation of the trustee as an intimated assignation of the bankrupt's whole right and interest

[a] Bankruptcy Act 1856; 19 and 20 Vict. c. 79, s. 102.

[b] *Sowerby* v. *Brooks*, 4 B. & Ald. 523; *In re* Atkinson, 2 De. G. M. & G. 140; *In re* Barr's Trusts, 4 K. and J. 219; *Palmer* v. *Locke*, 18 Ch. D. 381 per Jessel M. R. The decision in *In re* Bright's Settlement, 13 Ch. D. 413 deals with the vesting clauses of the Act of 1849, which are different from those of the present English Bankruptcy Act, 1883 (46 and 47 Vict. c. 52, ss. 20, 43, 44, 54).

in the policy at the date of the confirmation. To this rule an exception is introduced by section 111 of the Bankruptcy Act of 1856, which provides that if a debtor pays the amount due to the bankrupt himself in ignorance of the trustee's confirmation, he cannot be required to pay over again to the trustee. This provision would cover a payment by the company to the assured of the surrender value of the policy if made in ignorance of the fact that sequestration had been granted.

In the fourth place, it is essential that the assignment should be properly stamped. The Customs and Inland Revenue Act, 1888,[a] provides that "no assignment of a policy of life assurance shall confer on the assignee therein named, his executors, administrators, or assigns, any right to sue for the money assured or secured thereby, or to give a valid discharge for the same, or any part thereof, unless such assignment is duly stamped, and no payment shall be made to any person claiming under any such assignment unless the same is duly stamped.

"If any payment shall be made in contravention of this section, the stamp-duty not paid upon the assignment, together with the penalty payable on stamping the same, shall be a debt due to Her Majesty from the company or person by whom such payment is made, and shall be recoverable as such accordingly. Every condition of sale framed with the view of precluding objection or requisition upon the ground of absence or insufficiency of stamp upon any instrument executed after the passing of this Act, and every contract, arrangement, or undertaking for assuming the liability on account of absence or insufficiency of stamp upon any such instrument or indemnifying against such liability, absence, or insufficiency, shall be void."

Of course a company paying to an assignee upon an assignment, otherwise valid, but not properly stamped, would only incur liability for the stamp-duty and penalty. The payment would be perfectly valid against the parties concerned, and the company could not, on the ground that they had paid on an unstamped assignment, be required to pay over again. All that the statute does is to make the company liable to the revenue for the deficiency of the stamp. The proper stamp depends on the purpose of the assignment, whether it is absolute, in security, or contains a declaration of trust. In these three cases a different stamp is required.

The company is bound to see not only that the last assignment, in respect of which the claim is made, is stamped, but that all intermediate assignments, forming the chain of the assignee's title, are duly stamped. Of course if a prior mortgage of the policy has been discharged, so that it does not form a link in the

[a] 51 Vict. c. 8, ss. 19 and 20.

in a case where the advance was made upon a *post-obit* security. Under this form of security, in which a reversion contingent on survivance is mortgaged to the lender, it is usual for the lender to insure his debtor's survivance, so as to provide an indemnity against the event of his never becoming entitled to the reversion. Such a policy is usually taken in the creditor's name, and the reversion is burdened with payment of a fixed sum or reversionary charge calculated as the equivalent of the capital, interest, and premiums on the insurance. If the policy belongs to the debtor, and is merely pledged in security, he is, on the principle already explained, entitled to a reconveyance if the debt is paid during the currency of the policy, or his representatives at his death are entitled to the surplus of the proceeds, if any, after the creditor's claim is satisfied.[a] But if the creditor takes out the policy without any arrangement with the debtor, paying the premiums himself, he is entitled to the proceeds of the policy whether the debt is paid or not, and on the predecease of the debtor is not bound to account for the proceeds to his representatives.[b]

If the transaction is properly a mortgage, then the right to redeem the subject pledged, on payment of the debt, is, as we have seen, an essential condition of the contract, and will be implied if not expressed. By an extension of the same principle, an express provision in the mortgage deed by which the debtor abandons his right to redeem the security, or by which his right to redeem is limited in point of time, will not be given effect to. In other words, a contract of pledge implies the right to redeem the pledge on payment of the debt and interest, and it is incompetent for parties to agree (except under the Pawnbroking Acts) that the right to redeem shall be forfeited after a given period.

The foundation of this doctrine would seem to be that the forfeiture agreed upon is really a penalty, against which equity gives relief to the extent of limiting the penalty to the actual damage sustained. The damage sustained by a mortgagee in consequence of his debtor's failure to pay at the period stipulated, or on demand, is held, under this rule, to be measured by the debt and interest from the date it became due or was demanded; and, therefore, upon the debtor making this good, the forfeiture is held to be avoided, and the interest of the creditor in enforcing the penalty satisfied.[c] The judgment against the company in the Marquess of Northampton's case went mainly on the ground that the deeds

[a] Cf. *Shand* v. *Blaikie*, *supra*. [b] Cf. *Knox* v. *Turner*, *supra*.

[c] *Salt* v. *The Marquess of Northampton*, L. R. [1892], A. C. 1. The same principle is recognised in Scotland. Morison's Dictionary, *voce* 'Irritancy'; *Thomson* v. *Threshie*, 6 Dunlop 1106; *Smith* v. *Smith*, 6 Rettie 794.

that on redemption of the annuity the policy should also be conveyed to him. The deeds contained no obligation upon the grantor of the annuity to repay the advance, and in this respect the transaction differed from a loan. At the same time, the tendency in Scotland was to regard the grant as a pledge of the annuity in security of the interest and premiums of insurance, and of the policy in security of the principal sum, and not as a sale with a power of repurchase. When this is the true effect of the transaction, it is immaterial whether the right of redemption is or is not expressly reserved in the deeds, or whether the policy is assigned to the lender or taken in his name. The law presumes that in a pledge the pledger has a right to redeem, and will imply such a stipulation if not expressed.[a] In the case of *Shand* v. *Blaikie* the bond of annuity granted to the lender contained the usual provision that the annuity might be redeemed by repayment of the advance, but contained no provision that the policy of insurance, which was taken in the lender's name, should be conveyed to the borrower in that event. It was shown that the annuity was sufficient to cover the premiums on the insurance as well as interest on the sum advanced. This fact, in addition to others of a more special nature in the case, led the Court to the conclusion that the transaction was in substance a pledge, and that the policy, although in the lender's name, was the property of the borrower, and held by the lender in security merely. It was accordingly held that the lender's assignee was bound, on the death of the grantor of the annuity, to account to his estate for the surplus proceeds of the policy beyond the debt.

On the other hand, the tendency in England has been to regard the transaction as a sale of the annuity with a power of repurchase, and to hold that the grantor has no right or interest, apart from special stipulation, in a policy upon his life obtained by the purchaser of the annuity in his own name. This was held, although by the terms of the deed of sale the grantor agreed to pay the extra premiums required in the event of his residing abroad.[b] There is, however, it is thought, no difference in the principle of these decisions; they depend on the view taken of the effect of the transactions; and in Scotland as well as in England the grantor of the annuity would be held to have no interest in a policy on his life obtained by the grantor, if the circumstances were such as to show that a sale and not a pledge was contemplated. Although these forms of security are now practically obsolete, the principles they lay down are still applicable, and have recently been applied

[a] *Marquess of Queensberry* v. *Scottish Union Ins. Co.*, 1839, 1 Dunlop 1203; *Shand* v. *Blaikie*, 21 Dunlop 878.

[b] *Knox* v. *Turner*, L. R. 5 Ch. 515; *Preston* v. *Neele*, L. R. 12 Ch. D. 760, 769.

in a case where the advance was made upon a *post-obit* security. Under this form of security, in which a reversion contingent on survivance is mortgaged to the lender, it is usual for the lender to insure his debtor's survivance, so as to provide an indemnity against the event of his never becoming entitled to the reversion. Such a policy is usually taken in the creditor's name, and the reversion is burdened with payment of a fixed sum or reversionary charge calculated as the equivalent of the capital, interest, and premiums on the insurance. If the policy belongs to the debtor, and is merely pledged in security, he is, on the principle already explained, entitled to a reconveyance if the debt is paid during the currency of the policy, or his representatives at his death are entitled to the surplus of the proceeds, if any, after the creditor's claim is satisfied.[a] But if the creditor takes out the policy without any arrangement with the debtor, paying the premiums himself, he is entitled to the proceeds of the policy whether the debt is paid or not, and on the predecease of the debtor is not bound to account for the proceeds to his representatives.[b]

If the transaction is properly a mortgage, then the right to redeem the subject pledged, on payment of the debt, is, as we have seen, an essential condition of the contract, and will be implied if not expressed. By an extension of the same principle, an express provision in the mortgage deed by which the debtor abandons his right to redeem the security, or by which his right to redeem is limited in point of time, will not be given effect to. In other words, a contract of pledge implies the right to redeem the pledge on payment of the debt and interest, and it is incompetent for parties to agree (except under the Pawnbroking Acts) that the right to redeem shall be forfeited after a given period.

The foundation of this doctrine would seem to be that the forfeiture agreed upon is really a penalty, against which equity gives relief to the extent of limiting the penalty to the actual damage sustained. The damage sustained by a mortgagee in consequence of his debtor's failure to pay at the period stipulated, or on demand, is held, under this rule, to be measured by the debt and interest from the date it became due or was demanded; and, therefore, upon the debtor making this good, the forfeiture is held to be avoided, and the interest of the creditor in enforcing the penalty satisfied.[c] The judgment against the company in the Marquess of Northampton's case went mainly on the ground that the deeds

[a] Cf. *Shand* v. *Blaikie*, *supra*.

[b] Cf. *Knox* v. *Turner*, *supra*.

[c] *Salt* v. *The Marquess of Northampton*, L. R. [1892], A. C. 1. The same principle is recognised in Scotland. Morison's Dictionary, *voce* 'Irritancy'; *Thomson* v. *Threshie*, 6 Dunlop 1106; *Smith* v. *Smith*, 6 Rettie 794.

by which the *post-obit* security was created provided that the debtor should be liable for premiums of insurance, and that the debt should be deemed discharged by payment under the policy. These conditions were held, by the majority of the Court, to be incompatible with the theory that the policy was taken out solely for behoof of the creditors, and to point to the conclusion that it was held by them as a pledge, and as the property of their debtor. It was pointed out that if the lenders wished to reserve to themselves the exclusive interest in the policy, they ought to effect it without any arrangement with the debtor; neither taking him bound for the premiums, or entitled to a release from the debt if the policy becomes payable.

The lesson to be drawn from the case would seem to be, that in advancing money upon a contingent *post-obit* reversion, an insurance company should transact on the footing of purchase and sale, rather than of mortgage. The borrower's personal obligation for repayment is usually valueless in such transactions, and it would therefore be sufficient to give him an option to redeem the reversion on specified terms, without taking him bound to repay the debt.[a] If the principle of purchase be adopted, it must be possible to fix actuarially the proper relation between the advance and the charge on the reversion, independently of the principle of debt and interest, so as to take account of the contingency of the borrower failing to survive the period of vesting. Where this is done, there is no room for the presumption that the grantor of the reversion retains any of the rights of an owner who has pledged the property.

If an insurance company advance money to the holder of a policy, they have, apart from any assignment or deposit, a prospective right of retention upon the sum due under the policy, a right which would appear to be available against a claim by an assignee of the policy, acquiring a right subsequently to the advance. If during the currency of the policy the insured becomes bankrupt, the company is entitled to rank on his estate as a secured creditor, in virtue of its prospective right of retention.[b]

The nature of this right was described in the case cited, as follows:—"Their right" (*i.e.* the insurance company's right) "is simply to withhold fulfilment of their obligations as obligees in the policies, so long as Blaikie" (the assured) "remains their debtor. The right must always be of a merely passive kind, and it will come into practical operation only when the sum in the policies shall become due. But though this prospective and contingent right does not now entitle them to take any active proceedings for forcing a settlement or otherwise, it constitutes at

[a] Cf. *Knox* v. *Turner*, L. R. 5 Ch. 515.

[b] *Borthwick* v. *Scottish Widows' Fund Society*, 1864; 2 Macpherson 595.

present a valuable security over the estate of the bankrupt, giving them a preference over the other creditors, and as such it must be valued and deducted from their claim. It is a right arising *ex lege*, which the defenders may ultimately make the means of operating a preference, and securing, wholly or in part, their claim against the sequestrated estate."[a]

3. *Trust Policies.*—We have seen that a policy may be assigned in trust by a separate deed; but that the same result may be attained more simply by declaring the trust purposes in the policy itself. This is done by making the policy payable to A as trustee, for the purposes set forth. It has been held in Scotland that such a declaration of trust is not, at common law, effectual, unless the policy is delivered to the trustee.[b] Such policies, where the beneficiaries are the wife or children of the assured, are dealt with by the Married Women's Policies of Assurance (Scotland) Act, 1880, and by the corresponding English Act, the Married Women's Property Act, 1882. These Statutes enable the assured to appoint a trustee or trustees of the moneys payable under the policy; and, in default of such appointment, they provide that the policy shall vest in the assured and his personal representatives as trustees. The trust is declared by the Act to be irrevocable, and the money payable under the policy not to form part of the estate of the assured so long as any purpose of the trust remains unfulfilled. On the death of the assured, it has been held that the right to sue upon the policy vests in his executors, if no trustee has been appointed, and not in the beneficiaries.[c] The policy in Cleaver's case was upon the life of Maybrick, for the benefit of his wife, and payment was resisted on the ground that, according to the verdict in the Maybrick case, the death of the assured had been brought about by the felonious act of Mrs. Maybrick, and that it would be against public policy that she should take any benefit from the insurance. The Court rejected this defence on the ground that by the terms of the policy, the company had contracted to pay the sum insured to the executors of the assured and not to the beneficiary, and that no question of public policy could arise with them. It was pointed out that such considerations as were urged by the company might prevent the executors from making any payment to Mrs. Maybrick. If this were the case, the effect would be that the trust had become, by her act, incapable of performance, and the sum insured would then have to be dealt with as estate to which the assured himself was entitled in virtue of his reversionary right as truster.

[a] 2 Macpherson, p. 605.
[b] *Jarvies' Trustees* v. *Jarvies' Trustees*, 1887; 14 Rettie 411.
[c] *Cleaver* v. *Mut. Reserve Fund Life Association*, L. R. [1892]; 1 Q. B. 147, 154.

By the terms of Section 2 of the Scottish Act, "a policy of assurance effected by any married man on his own life, and expressed upon the face of it to be for the benefit of his wife, or of his children, or of his wife and children, shall, together with all benefit thereof, be deemed a trust for the benefit of his wife for her separate use, or for the benefit of his children, or for the benefit of his wife and children; and such policy, immediately on its being so effected, shall vest in him and in his legal representatives in trust, for the purpose or purposes so expressed, or in any trustee nominated in the policy, or appointed by separate writing duly intimated to the assurance office; but in trust always as aforesaid, and shall not otherwise be subject to his control, or form part of his estate, or be liable to the diligence of his creditors, or be revocable as a donation, or reducible on any ground of excess or insolvency: And the receipt of such trustee for the sums secured by the policy, or for the value thereof, in whole or in part, shall be a sufficient and effectual discharge to the insurance office." Under the English Act, it is provided that a policy of insurance for behoof of his wife or children may be effected by "any man," without the qualification that he must be married. The effect of the omission of the word "married" is undoubtedly to enable a widower to make provision for existing children under the protection which the Act affords. It is more doubtful whether an unmarried man, who has neither wife nor children, could validly effect a policy under the Act for the benefit of a future wife or children. No doubt an insurance may, apart from the statute, be effected by an unmarried man as a provision for his future wife, or widow, or children; and the fund so created would not be available to his creditors if the assured had no immediate interest in or control over it. This would be the case if the policy were, by its terms, not payable till the death of the assured, or till he reached a specified age unmarried, and if, in the meantime, he could not assign or otherwise deal with it as a fund of credit, or if it were held by trustees. It would seem to follow that a valid trust might be effected by an unmarried man, at least under similar conditions, under the Act. But if no trustee were named in the policy or by separate writing except the insured, it is difficult to see who would have any interest or right to prevent him dealing with the policy as his own property, and in such circumstances it is thought his creditors could not be excluded. In other words, the law would not allow a man, by means of the Act, to create a fund available to himself and not available to his creditors, by inserting in a policy that it was for the benefit of his wife and children, when there was no one in existence answering either description.

The English Act also protects an insurance by any woman on

immediate use of the beneficiaries, that the company should require that an independent trustee should be appointed to administer the trust in accordance with the purposes expressed in the policy, or otherwise that the surrender, if made to the insured himself, should take the form of a surrender for a paid-up policy, subject to the original trust.[a] Similar objections would seem to hold good against a policy upon the endowment principle, at least as regards the investment part of it, to be held in trust for the wife or children of the insured in the event of the assured's death before reaching a specified age, but to be payable to himself, for his own behoof, on his attaining that age. The Act declares that the trust shall not be revocable, and the provision in question is clearly at variance with this, because it provides for the fund being made over to the assured before the purposes of the trust are fulfilled. It is therefore thought that such a policy would not be within the protection of the Act. It would also be open to the objection that the creditors could not be justly excluded where the provision was not made exclusively for the benefit of the persons in whose favour the statutory trust is created. The protection against the creditor is, in other words, only given when an irrevocable trust is constituted for the purposes set forth in the statute.

As regards the third method suggested, the rule has been laid down in England that a trustee may advance the premiums of insurance and so acquire a lien upon the policy, or he may borrow money for this purpose and transfer his lien to the lender. The lender will also acquire a lien if he advances money for this purpose at the request of all the beneficiaries.[b] An insurance company would therefore be entitled, if such a course were thought more advisable than surrender, to advance the premiums still due on the security of the policy in either of these cases, but in the former case only if the trustee were not the assured himself. The position of the assured is to a certain extent anomalous, because he is both a beneficiary with a reversionary right, and a trustee. On this account it is thought that an advance for premiums would not become a valid charge upon the policy if it were made at his request alone. If there is no independent trustee, the safer course would be to obtain the concurrence of all the beneficiaries.

There are as yet few decisions upon the proper construction of these important Acts, so that it is impossible to give a decided opinion on many of the questions which arise in relation to them.

[a] *Schultze* v. *Schultze*, 56 L. J. Ch. 356.
[b] In re *Leslie*, 23 Ch. D. 552; *Falcke* v. *Scottish Imperial Co.*, 34 Ch. D. 234. *Borthwick* v. *Scottish Widows' Fund*, 2 Macpherson 595.

trustee, they ought to inquire as to this before paying to the executors of the assured.

Just as in the case of ordinary policies, it may become necessary to realise the fund created by the policies under the Act during their currency. The Act imposes no obligation upon the assured to pay the premiums of insurance, and he may become unable to do so if insolvent. In these circumstances three possible courses would seem to be available to preserve the trust fund. The policy may either be surrendered for cash, or for a paid-up policy of less value, or money may be borrowed on the security of the policy to meet the premiums still due. In regard to the first of these courses, it has been held that the company is entitled to grant a surrender for cash upon the joint receipt of all the beneficiaries, including the assured himself, who has the reversionary interest, and of the trustee, who may either be the insured or a trustee specially appointed in terms of the Act. This was decided in a case where the insurance was effected by a husband on his own life, for the benefit of his wife as sole beneficiary, and when both the husband and wife concurred in the receipt for the surrender value.[a] In the same case, Lord Shand expressed the opinion that the words of the section "and the receipt of such trustee for the sums secured by the policy or for the value thereof, in whole or in part, shall be a sufficient and effectual discharge to the insurance office," were intended, *inter alia*, to meet the case of a surrender before maturity of the policy for cash, and that the receipt of the husband as trustee would have been itself a sufficient discharge without the concurrence of the wife, provided the insurance office had no notice of a contemplated breach of trust. It may, however, be doubted whether the Act contemplated a surrender of the policy for cash to the assured himself as trustee. No doubt the fund would, when surrendered, remain trust money, but unless it was invested by the assured, or handed to trustees, or in some other way kept separate and distinct from his own funds, it would become subject to his debts, and the beneficiaries would only have a claim, as creditors upon his estate, in the event of his insolvency. The protection afforded by the Act would thus practically be lost, as it would only be in very rare cases that either of these courses referred to would be adopted. In other words, it is thought that the statute contemplated not merely that the assured should be trustee of the fund, but that it should be held in such a way as to make the trust effectual. Nor is it compatible with the objects of the Act, that by simply inserting the name of his wife and children in the policy, a man should, at the expense of his creditors, create a fund of which he may become possessed at any time. For these reasons it seems advisable, if it is necessary to realise the fund for the

[a] *Schumann* v. *Scottish Widows' Fund Society*, 13 Rettie 678.

immediate use of the beneficiaries, that the company should require that an independent trustee should be appointed to administer the trust in accordance with the purposes expressed in the policy, or otherwise that the surrender, if made to the insured himself, should take the form of a surrender for a paid-up policy, subject to the original trust.[a] Similar objections would seem to hold good against a policy upon the endowment principle, at least as regards the investment part of it, to be held in trust for the wife or children of the insured in the event of the assured's death before reaching a specified age, but to be payable to himself, for his own behoof, on his attaining that age. The Act declares that the trust shall not be revocable, and the provision in question is clearly at variance with this, because it provides for the fund being made over to the assured before the purposes of the trust are fulfilled. It is therefore thought that such a policy would not be within the protection of the Act. It would also be open to the objection that the creditors could not be justly excluded where the provision was not made exclusively for the benefit of the persons in whose favour the statutory trust is created. The protection against the creditor is, in other words, only given when an irrevocable trust is constituted for the purposes set forth in the statute.

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LECTURE III.

ACCIDENT INSURANCE.

(*Delivered February 21st*, 1895.)

ACCIDENT Insurance is of comparatively recent growth. In 1880 there were only ten accident insurance offices in the United Kingdom, and the business was chiefly in the hands of one company, the Railway Passengers Assurance Company. Since then the premium income for accident insurance has been trebled, and a large number of new companies, such as the Scottish Employers, and the Northern Accident Company, have been established, in consequence, mainly, of the great impetus given to the business of accident insurance by the passing of the Employers' Liability Act of 1880. Various changes have been introduced into accident policies during this period, in the direction chiefly of increased compensation without additional premium. In 1850, the Accidental Death Insurance Company introduced policies covering temporary disablement in addition to the ordinary fatal risks. The Scottish Life Assurance Company was the first to make the full sum insured payable in the case of permanent total disablement as well as in the case of death, and the half of the sum insured where the disablement was permanent but only partial. Under a system recently introduced by the Scottish Accident Insurance Company, the compensation in the latter case takes the form of a pension for life. When the disablement is not permanent, it is usual to allow so much a week till a cure is effected, the period being restricted in all cases to twenty-six weeks for any one accident.

Permanent disablement is in most cases defined as, and limited to, the loss of two limbs or loss of both eyes. In other cases the full amount is allowed when permanent disablement results from any form of injury. The meaning of the terms "total disablement" and "partial disablement" with reference to the provisions of the policy, was considered in the case of *Scott* v. *Scottish Accident Insurance Company*,[a] where the policy set forth that "if the assured shall sustain any bodily injury . . . which shall occasion permanent partial disablement (as defined on the

[a] 16 Rettie 630.

to the provision of the Act of George the Third as regards insurable interest.[a]

Conditions as to Payment of Premiums. — Accident policies usually contain conditions as to the payment of first premiums and the commencement of the risk similar to those in life policies.[b] Accident policies are, as a rule, annual contracts, and are terminable on either side at the end of one year, in this respect resembling contracts of insurance against fire. The obligation to pay the sums insured, after the first period of insurance has expired, is accordingly expressly made conditional on the payment of renewal premiums within a specified period thereafter, "so long as the company shall accept the same." Under this provision, unless it is qualified by other parts of the policy, or by statements in the prospectus or advertisements of the company, an accident which happens within the days of grace before the renewal premium has been accepted is not covered by the insurance.[c]

Definition of the Risk.—The most important part of an accident policy is that defining the risk insured against. The liability of the insurers is usually expressed to be for injuries caused by "violent, accidental, external, and visible means," and the proper legal construction of these words has been frequently the subject of discussion.

It is clear that if the words were taken literally and without qualification, many cases of accidental injury, in the common acceptance of the term, would not be covered by the policy. The term "visible," for instance, strictly means appreciable by the sense of sight, and would exclude from the insurance injuries caused by any physical agency which could not be seen. Strictly, it is only by its effect on matter that the "means of injury" can be appreciated by the senses at all, and it is the effect rather than the means that are visible. In a recent case the term was accordingly held equivalent to "external," and to point to the intervention of any physical agency external to the person of the assured. "External" was itself held to mean the antithesis of internal, so that any injury not arising from internal weakness or disease is external.[d]

It is difficult to assign any value to the term "violent," because it is difficult to imagine a cause of injury at the same time accidental and external which is not violent. The violence of the means can in general only be inferred from the fact of the injury.

[a] *Shilling* v. *Accidental Death Ins. Co.*, 2 H. & N. 42.

[b] *Sickness and Accident Assurance Association* v. *General Accident Assurance Corporation*, 19 Rettie 977; see Lecture I.

[c] *Tarleton* v. *Staniforth*, 5 T. R. 695; *Salvin* v. *James*, 6 East 571, cases of Fire Insurance; *Simpson* v. *Accidental Death Insurance Company*, 2 C. B. (N. S.) 257, an accident case.

[d] Hamlyn's case, cited *infra*.

The premium is calculated in the form of a percentage upon the wages paid by the insured; the rate differing in accordance with the risk of accident attending the employment.

If the proposed Act of last year (1894), extending the liability of employers to any accident to a workman caused by the negligence of a fellow-workman, and removing the limits as to the amount recoverable, and the time within which action might be brought, had been passed, it would have meant a large increase of this kind of insurance.

Another form of accident insurance is that upon third-party risks, covering the liability of an employer to members of the public for the negligence of his servants, or the defect of his plant. This form of insurance is principally taken advantage of by owners of vehicles, such as omnibuses or tramcars, and it constitutes a very uncertain and speculative risk. Accident companies have no experience of their own in this kind of risk, and have to take their information from the tramway companies as to what accidents have cost them on an average of years. In order to keep the risk within reasonable limits, the amount payable in respect of any one accident, as well as in respect of injury to each individual, ought to be limited to a specified amount. In a recent case, depending on the construction of the terms of such a policy it was held that the company were liable for the whole sum covered by the policy, although the loss was only in respect of one accident in which a number of people were injured.[a]

The Proposal.—The proposal for accident insurance is practically the same as that for a life policy, and the same duty rests upon the proposer to make a full disclosure of all facts within his knowledge which affect the risk. The most material of these facts, in the case of an accident policy, are those relating to the occupation of the proposer, his physical condition, and his habits. Sometimes questions are asked as to the earnings of the proposer, as it is not thought desirable to insure for more, in the case of disablement, than the insured would make if in health. Companies also place the same importance as in other forms of insurance, upon the fact that applications for insurance have been made to other offices and have been accepted or refused. The law relating to the representations in the proposal, and to concealment of facts affecting the risk, is the same in the case of accident as of life insurance, and I do not therefore propose to deal with it now.

Insurable Interest. — Accident policies are usually own-life policies, but there is nothing to prevent any one insuring the life of another against accident if he has an insurable interest in that life. Accident policies have been held to be subject in this respect

[a] *South Staffordshire Tramways* v. *Sickness and Accident Assurance Association*, L. R. [1891], 1 Q. B. 402.

to the provision of the Act of George the Third as regards insurable interest.[a]

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[d] Hamlyn's case, cited *infra*.

The term "accidental" is therefore the crucial term of the clause, and accordingly it has more than once been defined judicially, but generally with the reservation that a definition of universal application could not be given. Three rules of construction have, however, been laid down. The first is that what is caused by natural disease or internal weakness is not accident. Thus where the assured was an officer on board a ship trading in the tropics, and was killed by sunstroke, it was held that this was not an accident, sunstroke being simply inflammation of the brain caused by excessive heat.[a] In giving judgment the Court said:—"It is difficult to define the term 'accident,' as used in a policy of this nature, so as to draw with perfect accuracy a boundary line between injury and death from accident and injury or death from natural causes, such as shall be of universal application. At the same time we think we may safely assume that in the term 'accident,' as so used, some violence, casualty, or *vis major* is necessarily involved. We cannot think disease produced by the action of a known natural cause can be considered as accidental. Thus disease or death engendered by exposure to heat, cold, damp, the vicissitudes of climate, or atmospheric influences, cannot, we think, properly be said to be accidental, at all events unless the exposure is itself brought about by circumstances which may give it the character of an accident."

The Court illustrated the distinction thus indicated by contrasting the case of injury or death resulting from cold or pneumonia contracted by a seafaring man, by exposure in the ordinary course of his duties, and by exposure in an open boat after the accidental loss of the ship. The case of sunstroke was assimilated to that of apoplexy or malarial fever, which, although they may not be the ordinary results of living in a tropical climate, are yet natural diseases incident to such residence, and not accidents except in the sense that they may or may not happen.

The second rule is that the term "accidental" cannot be applied to means which are the ordinary, or a usual, result of a voluntary act by the assured himself, but that if the result which follows from the voluntary act is one which was not intended and was highly unusual and improbable, then the injury may be said to have resulted from accidental means.

An interesting case illustrating this rule came before the Court of Appeal in England in 1893.[b] In this case the insurance was expressed in the policy to be against "any bodily injury caused by violent, accidental, external, and visible means." The policy

[a] *Sinclair* v. *Maritime Passengers Assurance Company* (1861), 30 L. J. (N. S.) Q. B. 77.

[b] *Hamlyn* v. *The Crown Accident Insurance Company*, L. R. (1893), 1 Q. B. 750.

the steps of a bathing machine, and six weeks later his body was washed ashore upon the Essex coast. Nothing further was known of the circumstances under which he met his death. As far as the evidence went, he might have died either accidentally, by the action of the water, or by suicide, or from internal weakness or disease while in the water. The Court below, holding that the evidence was equally consistent with any of these suppositions, and that the burden of proof lay upon the plaintiff to show accidental death, refused to submit the question to a jury. This decision was reversed on appeal by the Exchequer Chamber on the ground that the question whether the deceased met his death by drowning ought to have been left to the jury.

The same rule was laid down in the Scottish case of *Macdonald* v. *Refuge Assurance Company.*[a] In that case it was held sufficient to entitle the representatives of a deceased person to recover under his policy, that the death happened in such a manner as naturally to point to accident; and that it was not necessary to prove negatively that the death did not happen from other causes that might be suggested.

The third rule in relation to the definition of an accident is that an injury caused by the voluntary act of another may be an accident as regards the insured. For instance, it is an accident, as regards the passengers, if a train is run off the line intentionally; and in the same way it is an accident, as regards the patient, if a doctor criminally, or in ignorance, should prescribe an overdose of a poisonous drug. On the same principle murder is an accident as regards the victim.[b]

Conditions Limiting the Risk. — In addition to the clause in the body of the policy defining the risk, there are usually conditions attached to the policy, intended to impose further limitations upon the insurer's liability. A common form of such condition is one which excepts from the risk injury or death caused by internal disease. This merely expresses affirmatively what is implied in the term "accident," and it therefore adds nothing to the operative words of the policy.

A second form of condition excepts from the risk cases where internal disease, arising or existing independently of the accident, is either the sole cause of death or injury, or contributes to the death or injury jointly with the accident. This provision is intended to avoid the necessity of investigation as to the true cause of death where accident and natural disease are both present, and where it is doubtful which has been the cause of death or disability.

[a] (1890) 17 Rettie 955.

[b] *Hutchcraft* v. *Traveller's Ins. Co.*, 12 Am. St. R. 484; *Richards* v. *Traveller's Ins. Co.*, 23 Am. St. R. 455, 458.

the colon must have been due to some involuntary movement on his part. There was, however, no direct evidence of this, and the insured, in his account of what took place, did not say that he had made any unusual movement in stooping. The evidence of the medical experts examined for his representatives, the pursuers in the action, was also to the effect that the act of stooping, even if performed by a healthy man, was sufficient in itself to account for the injury. In this state of the evidence the First Division held that the company was not liable, on the ground that the act of stooping, which caused the injury, was the voluntary and intentional act of the insured, and, according to the pursuer's own witnesses, sufficient in itself, even if performed in the usual way, to account for the injury. The idea of accident was thus excluded not so much by the actual facts of the case as by the way in which they were presented to the Court, and, except upon this hypothesis, the decision is not easily reconcilable with the view taken by the Appeal Court in England in the case of Hamlyn.

In Clidero's case, just as in Hamlyn's, it was open to the Court to infer, without direct evidence, that the injury was due to some involuntary movement in the act of stooping. In both cases the injury must either have been caused by some such involuntary movement or by internal disease, because it is contrary to experience that rupture or dislocation is produced by stooping in the ordinary way. In the English case, the Court held that if the hypothesis of disease was excluded, it was a necessary inference that there must have been some involuntary movement on the part of the assured to account for the injury; but in Clidero's case the Court required direct evidence of this.[a]

It is not generally true that the absence of unequivocal evidence of accident is necessarily fatal to a claim upon an accident policy. In many cases the question is one of a balance of probabilities, and is properly a question for a jury. It has accordingly been laid down that when the question is one between suicide and accident, suicide is not to be presumed, and that when the insured has died in the water, it is not necessary to prove by direct evidence that he died by drowning, or to exclude the possibility of death by cramp or apoplexy, or some internal disease.[b] In the case referred to, the representatives of the assured were held entitled to recover the sum in the policy, although the body of the assured, who died while bathing, was not found until it was too late to determine the cause of death. The assured had left his lodgings in Brighton for the purpose of bathing. His clothes were found afterwards on

[a] See also *Mutual Accident Association* v. *Barry*, 131 U.S. 100, where the Supreme Court of the United States took the same view as the Court of Appeal in Hamlyn's case.

[b] *Trew* v. *The Railway Passengers Assurance Company*, 6 H. & N. 839.

the steps of a bathing machine, and six weeks later his body was washed ashore upon the Essex coast. Nothing further was known of the circumstances under which he met his death. As far as the evidence went, he might have died either accidentally, by the action of the water, or by suicide, or from internal weakness or disease while in the water. The Court below, holding that the evidence was equally consistent with any of these suppositions, and that the burden of proof lay upon the plaintiff to show accidental death, refused to submit the question to a jury. This decision was reversed on appeal by the Exchequer Chamber on the ground that the question whether the deceased met his death by drowning ought to have been left to the jury.

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[a] (1890) 17 Rettie 955.

[b] *Hutchcraft* v. *Traveller's Ins. Co.*, 12 Am. St. R. 484; *Richards* v. *Traveller's Ins. Co.*, 23 Am. St. R. 455, 458.

A third form of condition declares that the policy shall not apply where the accident itself gives rise to one or other of certain enumerated diseases, such as erysipelas or hernia, and where that disease is the direct cause of death.

The last form of condition excepts injuries sustained while the insured is in a state of intoxication, or during somnambulism, or while insensible, or in a fit.

In dealing with a claim upon a policy containing such conditions, the first question to determine is one of fact: what was the cause of death or injury. In general, the law looks only to the cause which is proximate in point of time, and regards this as the sole operative cause. It follows that conditions which contemplate the joint action of different causes are in general inapplicable. This is always the case if the causes are independent, in the sense that one is not the necessary or very usual consequence of the other. This rule is illustrated in the cases of *Winspear* v. *Accidental Insurance Company*,[a] *Reynolds* v. *Accidental Insurance Company*,[b] and *Lawrence* v. *Accidental Insurance Company*.[c] In the first of these cases, the policy covered any personal injury "caused by accidental, external, and visible means," and contained a proviso, that the insurance should not extend "to any injury caused by, or arising from, natural disease or weakness, or exhaustion consequent upon disease," a proviso in the first of the forms enumerated. The assured was seized with an epileptic fit while crossing a stream. He fell into the water and was drowned during the fit. It was held that the action of the water, and not the fit, was the cause of death, and that the representatives of the assured were entitled to recover. The view taken was that it was not a usual or natural result of a fit that the sufferer should fall into water and be drowned. In other words, the fit was the more remote cause, and was independent of the immediate cause, in the sense that one was not necessarily or usually the result of the other. The latter was therefore taken to be the sole cause of death, so that the proviso was inapplicable.

In Reynolds' case the assured went into the sea to bathe, and while in a pool, about one foot deep, became suddenly insensible from some unexplained internal cause, and fell into the water with his face downwards. When the body was found, water escaped from the lungs in such a manner as to show that the deceased had breathed after falling into the water. It was held on the same principle that the proximate cause of death was accident.

In Lawrence's case the words of the policy were:—"Provided always that this policy insures payment only in the case of in-

[a] 6 Q. B. D. 42.
[b] 22 Law Times Reps. (N. S.) 820.
[c] 7 Q. B. D. 216.

juries accidentally occurring from material and external cause operating upon the person of the assured, where such accidental injury is the direct and sole cause of death to the insured, or disability to follow his avocations, but it does not insure in case of death or disability arising from fits, or rheumatism, gout, hernia, erysipelas, or any disease whatsoever, arising before or at the time, or following such accidental injury (whether consequent upon such accidental injury or not, and whether causing such death or disability directly or jointly with such accidental injury)." This clause was intended to meet the decisions in the previous cases, and embodies the second and third of the forms of condition to which I have referred. In other words, the effect of that provision was, that if any of the diseases mentioned caused death, either by itself or jointly with accident, the company would not be liable whether the disease in question arose independently of the accident, or was itself caused by the accident.

The assured, while on a railway platform, was suddenly seized with a fit, which caused him to fall forwards off the platform on to and across the railway line. A locomotive engine which was at that moment passing through the station, passed over his neck and body, and he received mortal injuries of which he died.

It was held that the company were liable. The proximate, and therefore, in the eye of the law, the sole cause of the injury, was the accident and not the fit. It was therefore not a case where two causes acted jointly in the manner contemplated in the proviso. If the company wish to avoid liability in such cases, the proper form of condition is one which excepts from the policy injuries sustained while the assured is in a fit or is insensible.

An exception to the rule that the proximate cause in point of time is alone to be regarded, has, however, been recognised where an accident causes injury which leads, as a natural or very usual result to some form of disease, such as hernia or erysipelas. The accident is then regarded as the cause of the death or disablement which ensues. This was laid down in the case of *Isitt* v. *Railway Passengers Assurance Company*,[a] where the policy provided that the company was to be liable "if the assured shall sustain any injury caused by accident . . . and shall die from the effects of such injury."

The facts of the case, as reported by the arbiter to the Court, were that the assured by an accidental fall dislocated his shoulder, and was in consequence confined to his room and to his bed. He suffered considerable pain, and became restless and unable to wear his clothes, and was reduced to a condition of debility. He thus became unusually susceptible to cold, and in consequence contracted the attack of pneumonia of which he died. It was held

[a] (1889) 22 Q. B. D. 504.

that the death of the assured was "from the effects of injury caused by accident," within the meaning of the policy.

In the course of his judgment Mr. Justice Wills said:—"Was then the death of the assured, under the circumstances stated, the natural consequence of the injury? I think it was. I think it idle to suggest that there is anything in these circumstances which tends to show that the cold, which led to the fatal attack of pneumonia, was caught by the assured in some manner independent of the injury. The umpire seems to me to have found that the assured caught cold owing to his having been made an invalid by the injury, and having in consequence to live as an invalid, and that the cold was due to some slight cause impossible to specify, but incident to the conditions of such a life, and which would not, apart from the debility produced by the injury, have caused his death. I think that, on the facts as found, there is no pretence for treating the death as less due to the injury because one step in the train of circumstances which followed was that the assured caught cold. These facts appear to me to present the exact negative of the case suggested, of a person who, having been weakened by a railway accident, is run over in the street by an omnibus. In that case the fatal injury caused by the omnibus is something altogether foreign to, and independent of, the railway accident, whereas here the facts show that the death of the assured was due, not to any foreign or independent cause, but to the natural consequence of the injury. Had the issue been submitted to a jury, I think that the proper direction would have been, 'Do you think that the circumstances leading up to the death, including the cold which caused pneumonia, were the reasonable and natural consequences of the injury and of the conditions under which the assured had to live in consequence of the injury? If you find that no foreign cause intervened, and that nothing happened except what was reasonably to be expected under the circumstances, you may, and ought to, find that the death resulted from the effects of the injury within the meaning of the policy.'"

Another illustration of the same rule is to be found in the case of *Fitton* v. *The Accidental Death Insurance Company*,[a] where the policy provided that the company would be liable "for injuries caused by cuts, stabs . . . when accidentally occurring from material and external cause, where such accidental injury is the direct and sole cause of death to the insured, or disability to follow his avocations, but it does not insure against death or disability arising from rheumatism, gout, hernia, erysipelas, or any other disease or cause arising within the system of the insured, before, or at the time, or following such accidental

[a] (1864), 17 C. B. (N. S.) 122

injury (whether causing death or disability directly or jointly with such accidental injury)." This provision failed to make it clear whether the exception applied only to the case where the enumerated diseases were independent of the accident, or applied also to the case where they were themselves caused by the accident, and did not result from internal weakness or disease. The Court adopted the former construction, and held the exception to apply only to the diseases named, if they arose from internal causes within the system, not when they were the direct result of the accident, or of the condition to which the sufferer was reduced by the accident.

The words of the exception, "death or disability arising from rheumatism, gout, hernia, etc.," were held to be qualified as to their extent by the other words of the same clause, "or any other disease or cause arising within the system of the insured, before, or at the time, or following such accidental injury," and therefore not to apply to hernia not arising within the system, but caused by external violence. It was accordingly held that death from hernia, which was itself the result of an accidental fall, followed by a surgical operation, performed to relieve the patient, was not a death from hernia within the terms of the exception.

It follows *a fortiori* that if the policy simply provides that the insurance shall not cover hernia, this does not include hernia which is the result of accident.[a]

In a case which occurred a few years later, the words of the exception were almost the same as in Fitton's case,[b] the provision being that the policy did not "insure against death or disability arising from rheumatism, gout, hernia, erysipelas, or *any other disease, or secondary cause or causes*, arising within the system of the insured, before, or at the time of, or following such accidental injury (whether causing such death or disability directly or jointly with such accidental injury)." The only difference between the terms of the exceptions in the two cases was that the words "any other disease or secondary cause or causes" were substituted, in the latter case, for the words "any other disease or cause" in the former.

The assured accidentally cut his foot against the edge of an earthenware basin. Erysipelas supervened five days after this accident, and of that disease the assured died within a week. It was held that the company was not liable, the clause in the policy being read so as to cover erysipelas arising from an accident, and acting as a secondary cause, as well as erysipelas arising independently of the accident from an internal cause.

Baron Kelly dissented from the judgment on the ground that the case was indistinguishable from Fitton's case, and his opinion

[a] See also *Freeman* v. *Mercantile Mut. Accident Association*, 156 Mass. 351.
[b] *Smith* v. *Accidental Ins. Co.*, 1870, L. R. 5 Exch. 302.

seems to me to rest upon the sounder principles of construction. The two constructions of the clause were possible, and therefore that construction should have been preferred which was more favourable to the assured. The majority of the Court held that the erysipelas was a secondary cause, within the meaning of the exception, and distinguished the case from Fitton's, in respect that in the condition which was the subject of construction in that case, the qualifying term "secondary cause" did not occur. This is the only case in which a clause dealing with the joint effect of two causes in producing death or disablement has been given effect to.

In the case of *M'Kechnie's Trustees* v. *Scottish Accident Insurance Company*,[a] the policy contained an exception from the risk in the case of death or injury from internal disease, although accelerated by accident. Lord Fraser held the exception to apply where the assured, both before and after the accident, was afflicted with Bright's disease, and where he died from that disease accelerated by an accidental fall from his dog-cart. The Second Division adhered, but on the ground that apart from the terms of the proviso altogether it had not been proved that the assured died from accident.

A clause excepting accidents while in a state of intoxication has been held in America to apply whether the intoxication contributed to the accident or not.[b]

Sometimes the exceptions from the risks insured against also include accidents happening "by exposure of the insured to obvious risk of injury." This form of exception was considered in the case of *Cornish* v. *Accident Insurance Company*.[c] It was laid down that the exception must not be taken literally, and that some qualification must be put on the words used, otherwise the contract would be rendered practically illusory. The clause was, however, held to have the effect of excluding the two following classes of accident: (1) accidents which arose from the assured exposing himself to risk of injury, which risk was obvious to him at the time; and (2) accidents which arose from the assured exposing himself to risk of injury, which risk would have been obvious to him if he had paid reasonable attention to what he was doing. An example of the first of these cases is presented when a man walks along a railway line,[d] and of the second when, as in the case cited, he crosses the line without looking to see that it is clear.

In America it has been held that if the risk is incident to the insured's business, trade, or usual occupation, he does not, by

[a] 1889, 17 Rettie 6.
[b] *Standard Life and Accident Ins. Co.* v. *Jones*, 94 Ala. 434.
[c] 23 Q. B. D. 453, 456.
[d] *Tuttell* v. *Travellers' Ins. Co.*, 134 Mass. 175.

incurring it, voluntarily or unnecessarily expose himself to danger in the sense of an exception to that effect in the policy. Thus when the assured, who was a painter, was engaged in painting a wall, and in doing this work allowed himself to be suspended from the top of a building on a swinging scaffold which could be raised or lowered as occasion required, the exception was held not to apply to an injury sustained by the fall of the scaffold. It was proved that this was the usual method of working employed by persons in this trade, and the Court took the view that this was a risk assumed by the association in issuing the policy to the assured, who would necessarily, from the nature of his employment, be engaged in work of this kind.[a]

Notice of Accident.—Most policies contain provisions requiring notice of the accident within a specified number of days. When such notice is made by the terms of the policy a condition precedent, no claim upon the policy is in general maintainable unless it has been complied with.

If the provision is that the notice is to be given by the assured or his representatives, it is sufficient if notice be given by any person who takes upon himself the duty of serving notice on behalf of those interested in the policy. Since notice by the assured himself is not in that case necessary, it is not a good defence to an action on the policy that the assured was fatally injured and died before he could give notice. The non-fulfilment of the condition in such circumstances would not be due to impossibility of performance, but to the failure of the assured to appoint some one to give notice, in case he should personally be prevented from doing so.[b] But if the condition is that the assured shall himself give notice within a given time, it would, it is thought, be held to be discharged if, by his instantaneous death, the condition became impossible of performance. In order that such a condition may operate as a condition precedent, it must be very clearly stated that this is to be its effect. Otherwise the notice will not be regarded as essential to the right to sue upon the policy.[c]

In the case of *Shields* v. *Scottish Assurance Corporation, Limited*,[d] the facts were very special. The insurance was against injury or death by accident to a horse. The horse was so injured by an accidental fall that it became necessary to kill it. Notice was sent to an agent of the company on the footing that the case was one of death and not of injury. On receipt of this notice the company

[a] *Wilson* v. *North-Western Mutual Accident Association*, 55 North-Western Reporter, 626.

[b] *Patton* v. *Employers Liability Assurance Company*, 20 L.R. Ireland, 93.

[c] *Stoneham* v. *Ocean Railway and General Accident Insurance Company*, 19 Q. B. D. 237.

[d] 16 Rettie 1014.

at once repudiated liability on the ground that the horse had been killed without their sanction, and that the notice should have complied with the conditions applicable to the case of injury. The Court held by a majority that the case was properly treated by the assured as one of death, and that the notice given was sufficient. It was also held that after the company had repudiated liability, it was not incumbent on the insured to send in a report by a veterinary surgeon, or take any further steps required by a policy as preliminaries to a claim.

LECTURE IV.

CONDITIONS IN FIRE POLICIES.

(*Delivered March 21st*, 1895.)

THE law of fire insurance depends on the two fundamental principles, that a fire policy is a contract of indemnity, and that, in its usual form, it is a personal contract. In the present lecture I propose only to deal with the conditions in fire policies which express or modify these principles.

The first principle, that fire insurance is a contract of indemnity, is founded on considerations of public policy, and is a rule of law which cannot be set aside by consent of parties. An insurance against loss by fire for a fixed sum, irrespective of the actual loss sustained by the insured, would not be valid or enforceable.

Policies of marine insurance, which, like fire insurance, is a contract of indemnity, are sometimes made valued policies, but this does not mean that the policy will be sustained if it is proved that the value stated in the policy exceeds the actual value of the subject insured. The object of the valuation is to supersede the necessity of inquiry into the value of the vessel and cargo after they have been lost, but if it is proved that there has been a fraudulent over-valuation on the part of the insured, or an illegal agreement between the insurer and insured to effect an insurance without interest, the policy will not be sustained for the actual value, but will be treated as altogether void. A valued policy is therefore good for its amount or for nothing.[a] In fire insurance it is not usual to issue valued policies because of the cost and difficulty of having valuations made, and of the fluctuations in value which might occur after the valuation, but in a few cases valued policies against loss by fire are issued.

The principle of indemnity must not be confounded with the statutory rule against wager insurances, which requires that the insured should have an insurable interest at the time of effecting the policy, but does not prescribe any limit to the amount recoverable in the event of loss. The statute of George III. which deals with wager insurances, although by its terms it covers insurance upon any event, has practically no application to fire insurance,

[a] Arnold on *Marine Insurance*, 6th Ed., Part I., Ch. 6.

because the possibility of gain implied in a wager is necessarily absent from a contract which only provides compensation for an actual loss.

The second principle, that the contract is personal, is merely a rule of construction, and applies to a policy in ordinary terms. There is nothing illegal in a policy so framed as to attach to the property insured and pass to the assignee upon a sale or transfer of the property. An ordinary life policy, if originally issued to one having an insurable interest, and thus valid under the statute, may be assigned, without the assent of the insurer, to any third person whether he has an interest or not. But in the case of a fire policy, only those who are named in the policy itself, either expressly or in general terms as parties to the contract, are entitled to recover under it. It is only to them that the engagement to indemnify is undertaken. The policy cannot, therefore, be validly assigned without the insurer's consent, and even in that case only to one to whom the property insured is also transferred.

The simplest application of these principles is in the case where the insured property is sold during the currency of the policy. If the transfer is complete, so that the seller's interest is entirely divested, he sustains no loss by the destruction of the property, and cannot recover on his own account. Nor is he entitled, after his own interest has lapsed, to assign his contract with the insurers to the purchaser, or to keep the policy alive for his benefit. The insurance practically comes to an end; the seller cannot recover upon it because he has parted with his interest; the purchaser cannot recover because the contract was not made with him. This rule of law is usually expressed as one of the conditions of a fire policy, to the effect that the insurance "shall cease to be in force upon the interest of the insured in the property passing from him, otherwise than by will or operation of law, unless notice thereof be given to the company, and the insurance continued by an indorsation on the policy by or on behalf of the company." This proviso only applies upon a complete divestiture of the interest of the insured.[a]

In the case of a sale of a house, or other heritable subject, it is usual for the contract to be concluded by missives, and the price fixed, some time before the conveyance is executed and the entry given. Until completion of the contract by conveyance, the seller is held by the law of England to retain a lien upon the subjects, and is not bound to convey them till the price is paid. During the subsistence of his lien he has still an interest in the subject insured, and in the case of loss by fire is entitled to enforce his policy against the insurers for the unpaid balance of the price. This is the case, although the risk passes to the purchaser as soon

[a] *Shotwell* v. *Jefferson Ins. Co.*, 5 Bosworth 247; 2 Am. L. C. 833, note.

as the contract is concluded, so that if a loss occurs before completion, the bargain must still be implemented and the price paid.

These questions have never been the subject of decision in Scotland, but it is well settled that the same distinction exists as in England, between an agreement to convey and a completed transfer by conveyance. The missives of sale in Scotland merely constitute an agreement to convey, and it is therefore a mistake to suppose that the seller is divested of his whole interest in the subjects upon the signing of the missives. The precise nature of the seller's right after he has entered into an agreement to convey his property, but before the conveyance is executed, is not very clearly determined; but it is not disputable that he has the right to retain the subjects until the price is paid. This is practically equivalent to the lien conferred by the English law. It is no doubt true that the risk passes to the purchaser when the agreement to transfer is signed, and therefore he is bound to accept a conveyance at the stipulated price, although the buildings or the solum may have been deteriorated by fire or other accidental cause. A loss by fire accordingly falls ultimately on the purchaser just as in England, but the seller's interest is also affected by the loss. He is, to the extent of the injury by fire, deprived of the subject as an equivalent for the price, and is forced to rely upon the personal obligation of the purchaser. The English cases, therefore, deal with the same circumstances as arise in Scotland, and it is therefore thought that the same rule would be adopted in Scotland as in England, in regard to the rights of an undivested owner under contract to convey, in a policy of insurance upon the subject sold. His policy is still valid to the extent of his interest—that is, to the extent of the price remaining due—as an equivalent for which, until paid, he is entitled to hold the subjects of the sale. It has been held in England, that in these circumstances, the insured is not bound to enforce his remedy against the purchaser before claiming the indemnity to which he is entitled under his policy.

This was the point decided in the first of three leading cases in the law of insurance, the case of *Collingridge* v. *Royal Exchange Assurance Corporation*.[a] In that case a house, which had been insured, was sold during the currency of the policy. It was burned before the transaction was completed by conveyance, and before the price was paid. In an action by the insured against the company, it was held not to be a good defence that the purchaser was liable to make good his bargain, and that it was therefore unnecessary to have recourse to the insurance company. The Court were of opinion that the insured was not bound to rely upon the solvency of the purchaser, but was entitled, in the first instance,

[a] 3 Q. B. D. 173.

to recover from his insurers the balance of the purchase-money unpaid.

In the next case,[a] which arose out of a suggestion made in the previous case, the circumstances were the same. A bargain had been entered into for the sale of a house. Before, however, it was conveyed to the purchaser, and before the price had been paid, it was burned. The vendor obtained payment of the sum insured from the insurance company, on the principle laid down in the former case. The question raised was whether the purchaser was entitled to have the insurance money deducted from the price, or applied to the reinstatement of the premises. It was maintained for the purchaser that the policy passed to him along with the property; or, alternatively, that the vendor held the insurance money as trustee for him. The Court negatived both these contentions, and held that the purchaser was liable for the full price irrespective of the loss or of the insurance.

From these cases it might appear that, in the circumstances referred to, the insured might recover the value of his house twice over—once, under his policy, from the insurers, and a second time, under his contract of sale, from the purchaser. This idea was, however, negatived by the case of *Castellain* v. *Preston*,[b] which was brought in consequence of certain observations of the judges in the previous case of *Rayner* v. *Preston*. The new question raised was whether the insurance company were entitled to recover the indemnity they had paid, in respect that the insured, after receiving it, had also received the price of the house from the purchaser, and had thus been paid for his loss twice over. Such a result would clearly have been inconsistent with the principle of indemnity, and it was accordingly held that the company were entitled to recover back from the insured the amount by which the two payments exceeded, in the aggregate, the actual loss.

It is a corollary from the principle of indemnity that the insurers, who pay a loss, are entitled to the benefit of all the means open to the insured by which the loss may be diminished, whether these consist in contracts or obligations not yet fulfilled, or in payments actually received by the insured. But this right only arises on payment by the insurers of the loss, and they are not entitled to require the insured to exhaust his remedies against third parties before having recourse to his policy. Thus, if the building insured is burnt after a contract of sale has been entered into, and the price fixed, the insurers of the vendor are entitled, upon payment to him of the loss, to the benefit of his contract with the purchaser, in so far as the payments due or received by the insured from both sources exceed an indemnity. If the contract with the purchaser

[a] *Rayner* v. *Preston*, 14 Ch. D. 297; 18 Ch. D. 1.
[b] 11 Q. B. D. 380.

is unfulfilled, the company are entitled to sue for the price in the vendor's name; if it is fulfilled and the price paid, they are entitled, to the extent indicated, to the benefit of the payment in the hands of the insured. The principle is explained in Castellain's case as follows:—"A person who wishes to recover for, and is paid by the insurer as for a total loss, cannot take with both hands. If he has a means of diminishing the loss, the result of the use of those means belongs to the underwriters. If he does diminish the loss, he must account for the diminution to the underwriters."[a]

The principles laid down in these cases lie at the foundation of the law of fire insurance. They apply in all cases where a third party is liable to make good the loss as well as the insurers. When, for instance, property in the custody of a carrier or warehouseman is insured by the owner, he is entitled to recover the loss by fire from his insurers, although the carrier or warehouseman may also be liable to him for the loss. An insurance company is, in other words, not entitled to say to the insured, "You must exhaust your other remedies before claiming against us." They are bound to fulfil their contract of indemnity irrespective of the liability of third parties for the loss.[b] But on payment to the insured, the insurers have the right to proceed in his name against a carrier or warehouseman or other third party for relief, and it is not a defence to such an action that the obligation is discharged by the payment of the insurance money.[c] Lastly, if the insured sues the carrier or other bailee in his own name, and recovers a sum in respect of the loss of his goods from such third party, as well as the sum due under his policy, he holds the surplus of what he has recovered beyond an indemnity as trustee for his insurers.[d] Similar principles apply where a third party is responsible for the loss by fire on the ground that it has been caused by his delict or negligence. If, for instance, property at the side of a railway line is set fire to by a spark from an engine, and it is proved that the ordinary and reasonable precautions against sparks have not been taken in the construction or working of the engine, the railway company is responsible. If the owner is insured, he is not bound to establish liability against the company, or to embark in litigation for this purpose, but is entitled to enforce his contract of indemnity against his insurers, leaving them to enforce relief against the wrong-doer.[e] It is to a certain extent true that in such cases the insurance is an insurance against the insolvency of the person primarily responsible for the loss, but it is equally true that,

[a] Per Bowen, L. J., p. 402; *Burnand* v. *Rodocanachi*, 7 App. Cas. 333; *Darrell* v. *Tibbitts*, 5 Q. B. D. 560.

[b] *Collingridge's* case.

[c] *Castellain's* case, and *Rayner's* case.

[d] *Castellain's* case.

[e] *Quebec Fire Office* v. *St. Louis*, 7 Moore's P. C. C. 286, 317; *Mason* v. *Sainsbury*, 3 Douglas 61; *Clark* v. *Inhabitants of Blything*, 2 B. & C. 254.

apart from the loss by fire, the insolvency would not result in a loss to the insured. If an insurance were held invalid on this ground, an insurance by a mortgagee would be invalid, for in that case it is equally true that if the security is damaged or destroyed by fire, the mortgagee would still have the personal obligation of his debtor to fall back upon, so that apart from the concurrence of the two events of his debtor's insolvency, and the destruction of the security by fire, he could sustain no loss. Insurances of a mortgagee's interest have, however, always been regarded as valid.[a]

There are, however, certain limitations upon the right of subrogation. For instance, while the insured is not entitled, after a loss has occurred, to release his claims against third parties gratuitously, and so defeat the insurer's claim to an assignment, there is no restraint upon freedom of contract before the loss; and the insured may enter into contracts in regard to the subject insured which may cut off the insurer's right of subrogation. Thus if, before the loss, a seller agrees with the purchaser to deduct from the price any sum he may recover under an existing policy, the insurers will have no right of subrogation.[b] In other words, the insurer's right to enforce relief against third parties is commensurate with that of the insured. In the case supposed, the purchaser might plead the agreement against an action for the price by the insured, and he is therefore entitled to plead it against the insurers, who sue as assignees merely of the insured.[c] Nor is the insured in general bound, in effecting an insurance, to disclose the existence of agreements with third parties which affect the insurers' right of recourse. This rule does not conflict with the principle above stated that the insurer, after the loss, is entitled to the benefit of all remedies available to the insured. This principle only applies to remedies existing at the time when the loss happens; it does not prevent the insured dealing with his rights before the loss. When, however, such agreements are made the subject of special inquiry, or where the insured is otherwise made aware that the premium is calculated upon the hypothesis that the insurer will be entitled to an assignment on payment, a duty of disclosure will arise.[d]

In some policies a special stipulation for subrogation is inserted, and where that is the case, the insurer is not bound to make good the loss if the insured has contracted away his right to fulfil his stipulation.[e]

[a] For a full discussion of the nature of the interest covered by a mortgagee's policy, see *Excelsior Fire Ins. Co.* v. *Royal Ins. Co. of Liverpool*, 14 Am. Reps. 271, at pp. 279, 283.

[b] *Nicols* v. *Scottish Union and Nat. Ins. Co.*, 11 Rettie App. 1094. *Nelson* v. *Brook Mut. Fire Ins. Co.*, 3 Am. St. R. 308; *Clinton* v. *Hope Ins. Co.*, 45 N. Y. 454.

[c] *Tate* v. *Hislop*, 15 Q. B. D. 368; *Phœnix Co.* v. *Erie Co.*, 117 U.S. 312.

[d] *Tate* v. *Hislop*, 15 Q. B. D. 368. [e] *Foster* v. *Van Reid*, 26 Am. R. 544.

A second limitation to the right of subrogation arises where the purchaser, or other third party primarily liable for the loss, is insolvent. The insurer's right of recourse is then of no value, but this fact does not constitute a valid defence to an action by the insured upon his policy.

Where a third party, other than the owner, is thus responsible for the safety of goods, he has an insurable interest in respect of this responsibility. Thus a carrier or warehouseman, or a wharfinger, whether liable by law or custom to the same extent as an insurer, or only for his own negligence, may, in order to protect himself against his responsibility, as well as to secure his lien, cause the goods in his custody to be insured to their full value, and the policy need not specify the nature of his interest.[a] The conditions of the policy usually require, however, that in such insurances the nature of the interest should be specified. The usual form of condition is that "Goods held in trust or on commission are to be insured as such, otherwise the policy will not extend to cover such property." This form of policy, if it is intended to cover the goods of customers not at the insurer's risk, is usually expressed to be upon "goods the insured's own, or held in trust or on commission." The words "goods held in trust" are construed to mean goods intrusted to the insured, and not to impart a trust in any technical sense, and a policy in this form is held to cover all goods in the premises specified, whether at the depositor's risk or not. Nor is the insurance confined to the personal interest of the insured in such goods under his lien for charges and commission, but covers the owner's interest as well. The bailee insures to this extent as agent for the owner, who is thus made a party to the contract. Unless, however, the bailee is under contract to insure, he is entitled to apply the sum recovered upon the policy, in the first instance to his own loss, holding the residue merely, if any, as trustee for his customers.[b] This form of policy is now rarely issued, and only to persons who are the actual custodians of the goods. It would not, for example, be issued to a broker upon goods in his own name in a public warehouse. If the insurance is intended to cover goods which do not belong to the insured, or for which he is not responsible, it would be advisable to state expressly in the policy that the goods specified were not the insured's own but held in trust.

The more common form of this class of policy is expressed to be upon goods the insured's own, or held in trust or on commission, for which he is responsible. The insurance is, in this case, really

[a] *Crowley* v. *Cohen*, 3 B. & Ad. 478; *Phœnix Ins. Co.* v. *Erie Transportation Co.*, 117 U.S. 312, 323.

[b] *Waters* v. *Monarch Assurance Co.*, 5 E. & B. 870; *London and N.-W. Railway Co.* v. *Glyn*, 1 E. & E. 652.

a re-insurance of the carrier's or warehouseman's liability at common law, or under his contract of carriage or bailment. The words "for which he is responsible" are held to govern the whole clause, and to confine the insurance to goods which are either the property of the carrier, or for whose safety he is legally liable as an insurer.[a]

A curious instance of the application of these principles to somewhat complicated facts occurred in the case of the *N. B. and Mercantile Insurance Co.* v. *L. L. and Globe Insurance Co.*[b] In that case certain goods were deposited in a warehouse on condition that the bailee should be responsible to the owner for the safety of the goods. The goods were insured against fire by the owner by policies in ordinary form. They were also covered by policies issued to the wharfinger, expressed to be upon goods "the insured's own, or held by them in trust or on commission, for which they are responsible." Both sets of policies contained the ordinary condition as to contribution that "if at the time of any loss or damage by fire happening to any property hereby insured, there be any other subsisting insurance or insurances, whether effected by the insured or by any other person, covering the same property, the company shall not be liable to pay or contribute more than its rateable proportion of such loss or damage." The property in question was destroyed by fire, and the companies agreed to consign the amount of the loss, and to fight out the question of their respective liabilities *inter se.* The Court held that the case was not one for contribution, but that the loss must be adjusted as if the companies stood in the place of the insured and fell heir to their respective rights. The owner of the goods, had there been no insurance at all, would have been entitled to recover the loss from the wharfinger, and consequently his insurer was entitled, on indemnifying him, to exercise this right of relief. The wharfinger, who had insured for the very purpose of protecting himself against this liability, was entitled to transfer it to his insurer. The result of the case therefore was that the wharfinger's insurer was liable for the whole loss, and the merchant's insurer for nothing. It will be observed that, although no question was raised in this case between the insured and the offices, the result arrived at was in agreement with the cases already cited. The owner's insurer could not successfully have resisted a claim for compensation under the owner's policy by pleading that the warehouseman was primarily liable.[c] But under his right of subrogation he was entitled to enforce the owner's remedy against the warehouseman, and through him against his insurer.[d] Nor could the warehouseman or his insurer plead payment by the owner's insurer as a discharge of his liability.[e]

[a] *N. B. and Mercantile Ins. Co.* v. *Moffatt,* L. R. 7 C. P. 25. [b] 5 Ch. D. 569.
[c] *Collingridge's* case. [d] *Castellain's* case. [e] *Rayner's* case.

In regard to the clause of contribution, it was held that it did not apply to the state of facts. In the opinion of the Court that clause contemplated a case of what is called double insurance, where the same interest in the same property is insured twice over, and not a case where two distinct interests in the same property are independently insured. The Court did not consider that the interests of the owner of goods and of a bailee responsible for their safety were the same, and they therefore held that the case was not one where the loss should be settled by contribution. The right to contribution, although it is usually provided for by a condition of the policy, exists apart from any special stipulation wherever there are two or more insurances covering the same interest in the same property, the aggregate amount insured being greater than the value of the property destroyed. In such a case, any insurer who makes good the loss is entitled to claim proportionate relief from the other insurers of the same interest, the proportion being regulated by the amount insured by each policy.

In discussing the wording and effect of the contribution clause the Master of the Rolls in the same case said: "But there was a very important question raised as to the wording of the policies, and whether my opinion be or be not worth anything, I think it right to give it for the guidance of persons who may be interested in these matters on future occasions. The policies, I must say, are not well worded. In saying this, I do not impute any blame to the framers of these policies, or of the elaborate conditions on the back of them. But I cannot conceive that the event which has happened was one of the events contemplated by the framers of the instruments. . . . In that state of things I think that it is the duty of the Court to adopt that which is a reasonable construction, as contrasted with that which, if not an absurd, would be a very unlikely, construction." The wharfinger's policies "in their terms are not only for the assured's own property, but also for property held in trust or on commission, for which they are responsible. It was intended to apply to property not their own, but intrusted to them for safe custody only, and that must be borne in mind in construing the conditions. The framers of the conditions had probably not thought of that at all. They had in view, I imagine, merely and simply the case of a person insuring his own absolute property. The case of a person having a limited interest in property does not seem to have presented itself to their minds. If it had, it would I think have been separately and differently provided for. The word 'property' as used in several of the conditions means not the actual chattel but the interest of the assured therein. What is the meaning of the words 'covering the same property' in the

of the lease to restore buildings destroyed by fire, and the lessor's insurers were entitled, on payment of the loss to the lessor, to enforce this obligation against the lessee, if he were worth powder and shot.

It is quite clear that, if effect had been given in this case to the views contended for by the company, the result would have been that the insured would have paid his premiums without there being any equivalent liability on the part of the company. The value of the premiums paid by the lessor was obviously the same, whether the lessee insured the subjects or not. The insurance company did not propose, however, to reduce the lessor's premiums in consequence of the existence of the lessee's policy, although they apparently thought that this circumstance should narrow their liability. In addition to this, the company apparently desired to throw upon the insured the burden of his lessee's insolvency, the risk of this insolvency concurring with a loss by fire, being the sole inducement to the lessor to insure at all. The lessor could sustain no loss so long as his lessee, who was primarily liable, was solvent, and therefore the view taken by the company meant that they should *pro tanto* be relieved in the very event in which the insurance by the lessor was of any use.

A covenant by the lessee to repair has been held to give the lessor no right or interest in any insurance effected by the lessee. He has no lien upon the sum recovered from his insurers by the lessee, and unless he arrests or attaches it in the insurer's hands he takes no benefit by the insurance.[a]

An old English Statute, known as the Metropolitan Building Act,[b] has in one case been applied in order to arrive at an equitable settlement where both the lessor's and lessee's interest is affected by the loss. By the 83rd section of that Act insurers are authorised and required, upon the request of any person "interested in, or entitled to," the buildings injured by fire, to cause the sum insured to be expended in reinstatement. The owner of premises insured by his tenant has been held to be a person interested in, or entitled to the property, in the sense of this provision, and entitled under it to require the insurance money to be expended in reinstating the premises.[c] Some doubt has, however, been expressed in recent decisions in England, as to whether this provision is of general application, or is confined to the metropolitan district, and also whether, assuming its generality, the statute was correctly interpreted in the case referred to. The opinion has been expressed that it cannot be taken advantage of by purchasers from the insured or by mortgagees, who are certainly

[a] *Leeds* v. *Cheetham*, 1 Sim 146.
[b] 14 Geo. III. c. 78.
[c] *Ex part* Gorely, 4 De G. J. & S. 477.

persons "interested in" the property insured. The proper interpretation of the section would seem to be that only those are entitled to the benefit of the statute who are parties to the contract of insurance, as well as interested in the subject insured; and in any event, the Act cannot operate to extend the insurer's liability beyond the interest of the persons with whom his contract is made. For instance, it cannot entitle a purchaser to the benefit of a vendor's policy, where the title and interest of the vendor is wholly divested. The effect of the section, according to the more recent judicial dicta, is simply to enable any of the parties to a joint insurance to insist, while the sum due is in the hands of the insurers, that it should be expended in reinstatement for the joint benefit.[a]

In an American case,[b] dealing with similar conditions as to other insurance in the case of separate insurances by a vendor and purchaser, the same principle of construction was adopted as in the cases in this country. The purchaser's policy contained the proviso that it should be forfeited by a failure to give notice to the company of "any previous insurance," and that in the event of any "other insurance" upon the property, the different insurers should contribute ratably to the loss. It was held that these terms did not apply to a policy procured by the vendor before the sale, in which the purchaser had no interest or right, but were meant to cover the case of a proper double insurance, where the same interest in favour of the same person was insured twice over by different policies.

It has also been held that where several creditors held liens over the same goods, each may insure independently of the owner or of other creditors, and as the interests protected are distinct, the principle of contribution is not applicable to the settlement of the losses. The loss to each independent interest must be made good by the insurers of that interest.[c]

In the *Scottish Amicable* v. *Northern Assurance Co.*,[d] the suit was brought upon a policy of insurance issued to the holders of prior bonds over certain heritable subjects, and to the owners of the subjects. The policy ran in the name of the bondholders and of the owners, "jointly and severally and in reversion," and contained a contribution clause in the same terms as those given above. It appeared that at the time of the loss, the holders of postponed bonds held policies of insurance upon the same subjects, and that the owner was made a party in respect of his rever-

[a] *Rayner* v. *Preston*, 14 Ch. D. 297; 18 Ch. D. 1; *Westminster Fire Office* v. *Glasgow, etc., Society*, 13 App. Cas. 699, per Lord Selborne, 713.
[b] *Ætna Insurance* v. *Tyler*, 30 Am. Dec. 90.
[c] *Godin* v. *London Assurance*, 1 Burr. 490.
[d] 11 Rettie 287.

sionary interest to their policies, as well as to those issued to the prior bondholders.

The insurers under the different policies, untaught by experience, again contended that the loss should be settled as if all the policies had been issued to cover the same interest, and that they should contribute ratably to the loss, and pay the amount into a common fund which should stand in the place of the security destroyed. The defendant company accordingly claimed that their contribution should be limited to the part of the fire damage represented by the ratio of the sum insured by them, to the aggregate sums insured upon the security. The arguments in favour of this view will be found in the elaborate judgment of Lord Young, who dissented from the majority of the Court.[a] The majority held that the defenders were bound to settle as if no other insurance existed upon the same subjects. They rested their judgment upon the ground that the prior bondholders, by whom the action was brought, had no concern with other insurance to which they were not parties, and that there being no other insurance of their interest, the clause of contribution did not apply. The same rule of construction was applied as in the previous cases, and it was held that it made no difference that the owner was made a party to the policies.

In the subsequent case of the *Westminster Fire Office* v. *Glasgow Prov. Investment Society*,[b] which went to the House of Lords, the principle of separate and independent settlement was again affirmed. The case rose out of the same loss by fire as the previous case. In the previous case, the pursuers of the action were the first bondholders; in this case, the pursuers were the subsequent bondholders upon the same property, but they sued upon different policies, and against different insurers. The main question was whether, having regard to the payment recovered by the prior bondholders, the subsequent bondholders could recover upon their policies in respect of the same injury by fire to the bonded property. The policies held by the prior and postponed bondholders, although issued by different companies, were, as already explained, in the same terms, and each policy covered the owner's reversionary right. They contained, in addition to the clause of contribution, a clause giving the insurers an option to reinstate. The subject insured by all the policies consisted of a mill and machinery. The pursuers' postponed bonds over the subjects amounted to about £800, while the prior bonds amounted to over £8600; but the value of the security, inclusive of the site, before the fire was, according to the admission of the parties, sufficient

[a] 11 Rettie 295.
[b] 14 Rettie 947; 15 Rettie (H. of L.) 89; L. R. 13 App. Cas. 699.

to cover all the bonds. As a result of the judgment in the previous case, the prior bondholders had recovered from their insurers, who had elected to reinstate, a sum sufficient for that purpose, fixed by arbitration at £5668. This sum had not been expended in reinstatement, but had been applied by the prior bondholders in reduction of their debt. The value of the site and salvage of the mill and machinery after the fire, was, at the lowest estimate (that of the pursuers' valuators), £3500, this being the sum the subjects as they stood would have brought if sold in the market. The company's valuation was higher, but they admitted that the value of the site and salvage after the fire was less than £8600, the amount of the prior bonds. These figures show that the balance due to the prior bondholders, after the payment made to them by their insurers was, roughly, £3000; while the reduced value of the subjects was, at the lowest estimate, £3500, thus leaving a margin of £500 available to meet the pursuers' postponed bond of £800. The pursuers' bond was therefore uncovered to the extent of £300, and, upon any showing, they had sustained damage by the fire to this extent. The Court accordingly held that they were entitled to recover on the ground that, treating the pursuers' contract by itself, the salvage of the insured subjects after the fire did not in fact afford as good a security for the diminished debt, as the entire subjects before the fire afforded for the whole debt. Before the fire the value of the mill and machinery and the site was admittedly sufficient to cover all the bonds, including the pursuers' bond. After the fire, and in consequence of it, the value of the same subjects, after they had been realised, was insufficient by at least £300 to meet the pursuers' bond. The case might have been different had the mill been reinstated by the prior bondholders and set agoing again, for it might then have afforded as good a security as before for the postponed bonds. But the mill had not been reinstated, and the postponed bondholders could not compel it to be done. The defenders' contention therefore amounted to this, that because some one else had entered into a contract of indemnity and recovered some sum or other, the insured, who had nothing to do with this outside contract, could not recover, although it was proved that he had been in fact damnified by the fire.

The Court in dealing with the case treated the whole subject insured as a *unum quid*, and refused to draw a distinction between the flammable and non-inflammable portions of it. They held that in so far as the inflammable portions, including the site, were reduced in value as a consequence of the destruction of the flammable portions, the diminution in value must be taken into account in estimating the loss to the pursuers' interest. In dealing with

this question, Lord Selborne said: "I reject (as in my judgment fallacious) the argument that part of the loss ought to be ascribed to depreciation in value of the site or ground on which the barley-mill and counting-house stood, or of other parts of the site of the mill premises. The site remains, at whatever may have been its value, apart from and independent of the buildings which stood upon it. Any greater value which it had when the buildings which have been destroyed stood upon it was entirely due to those buildings, and as they were insured, and have been destroyed by fire, the contract of indemnity covers, in my opinion, the whole of that difference, less salvage only." It will thus be seen that, in estimating the loss by the fire, the Court held that in dealing with the interest in question, the market value of the subjects before and after the fire must be taken. They rejected the view that the cost required to reinstate is always and necessarily the measure of the loss for which insurers are liable, whatever interest or interests be insured. On this point the same learned judge says: "Nothing less than some statutory or other binding authority could establish in the appellant's favour a false and arbitrary measure of the actual loss. No such authority, applicable in these circumstances and as between these parties, was cited to your lordships. The sum necessary to reinstate is one thing; the loss, if there be no reinstatement (which is the present case), is another." It is not, however, necessarily implied in the case that if the prior bondholders had reinstated, the postponed bondholders could in no circumstances have recovered any further compensation. The question of reinstatement had no bearing whatever on the case, except with reference to the question whether, in point of fact, the insured had or had not sustained a loss which was covered by his policy.

The case is sometimes represented as if it introduced some new and startling theory into the law of insurance, whereas nothing could be plainer or simpler than the grounds of judgment. The whole fallacy underlying the views of the minority of the consulted judges in the Court of Session, was the assumption that a sum sufficient to reinstate premises destroyed by fire represents, whether they are or are not reinstated, and whatever the nature of the interests insured, the loss sustained by all the parties interested. If this be assumed to be correct, no doubt the decision is unsound; but the House of Lords rightly held this contention to be erroneous. It is perfectly plain that the value of the salvage of a wrecked building, or of machinery damaged by fire, for the purpose of reinstatement, is greater than the price they would fetch as old stone and iron—that is to say, is greater than their market value. But if this be the case and if they are not reinstated, why, in estimating the loss, should their value for the

purpose of reinstatement be taken rather than their market value, where the party seeking an indemnity has no power to compel reinstatement? The case must be held to establish that it is a fallacious view that, in a question between the insurer and insured, the loss is necessarily to be estimated at the amount required to reinstate the premises. The amount of the loss under a contract of indemnity is always a question of fact, and there is no hard and fast rule by which it is to be estimated.

A second objection urged against the soundness of the decision is that it afforded a new way to pay old debts, and that it offered an inducement to persons whose property was burdened by debt to set fire to it. This is not a logical inference from the decision, and is merely another way of putting the first objection. It would, of course, have been at variance with the principle of indemnity if any of the persons interested, including the owner, had recovered more than his loss; but it will be seen from the figures given above that this was not the case, provided the loss were estimated in the way indicated, and not by the cost of reinstatement. The owner of the subjects got no payment in cash, and he lost more than the debt paid to his creditors by the insurers. It is difficult to see to what this loss was due if not to the damage by fire. It was in no sense consequential or caused by the failure of the prior bondholders to reinstate. Reinstatement would probably have been, in the circumstances, an inadvisable proceeding. It is true that compensation for loss of trade and disturbance of business is not covered by an ordinary fire insurance policy; but the damage done by fire may be so great as to amount practically to a total loss, and to make reinstatement impossible or useless. In such circumstances the loss is very properly estimated, as in the case under consideration, not on the reinstatement but on the salvage principle. That there is nothing repugnant in this method to the principle of indemnity, or to a contract founded on that principle, is shown by the fact that it is adopted in marine insurance wherever the loss is actually or constructively total.

Even if the facts had been different, and if it had been shown that the owner had recovered more than an indemnity, either in the shape of cash or discharged accounts, this would not have been a valid objection to the decision. The owner would in that case have held the surplus as trustee for his insurers upon the principle laid down in *Castellain* v. *Preston*[a] and *Darrell* v. *Tibbitts*.[b]

The final result of the two cases would seem to establish the following propositions:—(1) That a mortgagee or other incumbrancer has an insurable interest in the security notwithstanding the existence of prior incumbrances, provided the aggregate amount

[a] 11 Q. B. D. 380. [b] 5 Q. B. D. 560.

of the incumbrances is not greater than the value of the security; (2) A subsequent incumbrancer insuring his interest will have a right to recover in the event of a loss where the security is so reduced in value as to leave his debt uncovered after the prior bonds have been paid off, either by insurance or out of the salvage; (3) In estimating this reduced value for the purpose of such an insurance, the market value of the site and salvage of buildings is to be taken, and not the value for the purposes of reinstatement, which is in general much greater; (4) Insurance by creditors of their independent interests is not to be treated as double insurance by the owner, in respect that he is made a party to each of the creditors' policies for his reversionary interest.

A Commentary

upon

The Married Women's Policies of Assurance (Scotland) Act, 1880.

BY

A. H. B. CONSTABLE, LL.B., ADVOCATE.

A Commentary upon the Married Women's Policies of Assurance (Scotland) Act, 1880.

In the present lecture I propose, in deference to a suggestion emanating from your Society, to discuss the *Married Women's Policies of Assurance (Scotland) Act*, 1880 (43 *and* 44 *Vict.* c. 26). The Act, as you are no doubt aware, is quite a short one, consisting of two clauses: one of which empowers a married woman to effect a policy of assurance on her own life or that of her husband for her separate use, while the other empowers a married man to effect, by means of a policy of assurance over his own life, a trust for behoof of his wife, or family, or both. In both cases the object is similar—to protect the sum assured against the husband and his creditors. Now it is impossible to appreciate the necessity of attaining this object, and the changes wrought in the law by the effort of the statute to secure it, without some knowledge of the previously existing rights of husband and wife respecting property and contracts, and of the rights of the wife and children under post-nuptial contracts and declarations of trust by the husband. Such knowledge, in a non-legal assembly, I am scarcely entitled to assume. And before I deal with the text of the Act, I accordingly propose to give a brief sketch of the general common law rights above referred to, and to note the results of the cases decided on the special rights of the spouses and children with respect to policies of assurance effected on the life of either spouse. So stated, my task is not a particularly easy one. The rights and disabilities of the wife were never very clearly defined, and of their somewhat vague and unsatisfactory nature the cases on policies are typical illustrations, while the Act itself, though it involves many points of difficulty, has been subjected to very little judicial interpretation since it passed. Its provisions are, indeed, very similar to those of Section 10 of the English *Married Women's Property Act*, 1870 (33 *and* 34 *Vict.* c. 95), which was replaced by Section 11 of the *Married Women's Property Act*, 1882 (45 *and* 46 *Vict.* c. 75); and upon both of these sections there have been a considerable number of decisions, which I shall refer to, if not as direct authorities, at any rate as important illustrations and analogies in discussing the Scots Statute But even when allow-

ance is made for this, any detailed commentary on the Act must necessarily be of a somewhat speculative character.

Observe, then, that at common law the wife's *persona* by her marriage became merged in that of her husband. In the ordinary case her personal obligations were altogether invalid; and all her deeds and contracts required the consent and concurrence of her husband, who, in virtue of his right of administration (*jus administrationis*), was curator of her person and administrator of her property. Over the heritage his power amounted simply to a right of management; but over the moveable property and annual proceeds of the heritage it amounted to a great deal more. The theory indeed was that marriage produced a communion of goods of both parties (*communio bonorum*), extending to all subjects not heritable, the sole management of the common goods being, however, vested in the husband in virtue of what was termed his *jus mariti*. But though termed a power of management, the *jus mariti* was really a right by which the husband acquired to himself absolutely the personal property of the wife. In virtue of it he was entitled to sue for, recover, and in his own name discharge, all sums due to his wife, and his creditors might attach them for payment of his debts. It was, in short, a legal assignation by the wife in the husband's favour of the wife's whole moveable estate, including all moveable subjects, the rents of heritage, and the interest of heritable and personal bonds, whether belonging to her at the date of the marriage or acquired during its subsistence, provided only such funds vested, or were capable of enjoyment, during the marriage. In England, though the general rule was similar, the wife was entitled to what was termed an equity to a settlement—that is to say, out of any property falling to her she was entitled to have a certain part (the amount depending on the discretion of the Court) set aside in the hands of trustees for the benefit of herself and her issue. But in Scotland there was, until the passing of the *Conjugal Rights (Scotland) Act*, 1861, no such compensatory privilege. The so-called *communio bonorum* was thus a mere fiction until the dissolution of the marriage, when the wife or her representatives were entitled to one-third or one-half of the goods in communion, according as there were or were not children of the marriage. Moreover, even though the husband made an express gift to his wife, it was, except in a certain case which I shall refer to immediately, revocable by him or his creditors on the principle of *donatio inter virum et uxorem*—that is to say, that all gifts between spouses during the subsistence of the marriage might be revoked by the donor.

To this general vesting of the wife's property in the husband there were, however, certain exceptions. It might of course be excluded by special provisions made in an antenuptial mar-

riage contract regarding property previously belonging to the wife, or conveyed under the deed. But apart from the funds being by this means impressed with a special destination, there were three cases in which the *jus mariti* might be barred: *first*, where estate was given or bequeathed to the wife by a stranger, expressly exclusive of the husband's rights; *second*, where by antenuptial marriage contract the husband had either expressly or by implication renounced his rights; and *third*, where the husband—and here comes in the exception to the revocability of gifts between spouses—granted a post-nuptial provision in his wife's favour, in consequence of his natural obligation to provide for her in the event of her survivance. Such a provision was, and will still be, sustained as irrevocable, but only subject to many conditions and limitations. In the *first* place, according to the now generally received opinion (*Goudy on Bankruptcy*, p. 33), it will not compete with or exclude creditors, if the husband is insolvent at the date of the grant. In the *second* place, it will only be sustained in so far as it is rational and suitable to the husband's circumstances at the time. And *thirdly*, it must only take effect after the husband's death. Thus in various cases provisions have been cut down as revocable, in so far as they sought to confer benefits upon the wife during the marriage, on the ground that as she had no legal rights during the marriage which she could renounce as an equivalent, the provisions were wanting in onerosity (*Dunlop's Trs.* v. *Johnstone*, 3 M. 758 and 5 M. H. of L. 22; *Miller* v. *Learmonth*, 10 M. 107).

In all these cases where the rights of the husband were excluded, the wife except in the single case where her interest was declared to be alimentary, could dispose of and deal with it as she pleased. Of course she was also free to hand over her property to her husband. She was not protected against the exercise of marital influence, but only against the operation of law.

As regards children, it was always possible, by post-nuptial deed, to secure them to the effect of enabling them to compete with, or exclude, other creditors of the father. But such a deed, though not, like a provision in favour of the wife, subject to revocation as a donation, was open to the same exception of insolvency at the date of granting. Where the right conferred either on wife or children arose under a contractual deed, no question as to delivery could arise; but where the benefit was sought to be conferred otherwise—as, *e.g.*, by the constitution of a trust—delivery to the trustees was necessary to complete the right of the beneficiaries; and the absence of this was a frequent source of disappointment of gifts to widows and children.

The rights of the husband over the wife's estate have been still further modified by legislation during the course of the last thirty-five years. But before adverting to these statutes it should

be noticed that, by the *Intestate Moveable Succession Act* of 1855 (18 *Vict.* c. 23, *Sect.* 6), the doctrine of the communion of goods was deprived of the last semblance of reality by a provision excluding the representatives of a predeceasing wife from all share in the goods in communion. The statutory limitation of the husband's rights began in 1861. By the *Conjugal Rights (Scotland) Amendment Act* of that year (24 *and* 25 *Vict.* c. 86) it was provided that a wife deserted by her husband might apply to the Court for a protection order, the grant of which barred all claims at the instance of the husband or his creditors, and left her as free to deal with her property as if she were unmarried. The same results were declared to follow in case of a judicial separation. While another section introduced the English principle of the wife's "equity to a settlement" by providing that when a married woman acquired property otherwise than by the exercise of her own industry, the husband or his creditors should not be entitled to claim it, except on the condition of making therefrom a reasonable provision for the support of the wife, if a claim therefor was made on her behalf. The fruits of the wife's own industry, excepted from the benefits of this statute, were dealt with by the *Married Women's Property (Scotland) Act*, 1877 (40 *and* 41 *Vict.* c. 29), which excluded the *jus mariti* and right of administration from her earnings in any employment or in any business carried on under her own name, and from property acquired by her through the exercise of any literary, artistic, or scientific skill. Upon this followed, in 1880, the *Married Women's Policies of Assurance Act*, which forms the subject of this paper. Finally, by the *Married Women's Property (Scotland) Act*, 1881 (44 *and* 45 *Vict.* c. 81), which came into effect on 18th July 1881, in the case of all marriages contracted after the passing of the Act, the *jus mariti* was completely abrogated, and the right of administration excluded from the annual income of the estate. In the case of marriages contracted before the passing of the Act, where no reasonable provisions had already been made for the wife, similar provisions were made applicable to all property subsequently acquired.

We are now in a position to apply the general principles regulating a wife's property at marriage, and the acquisition of rights in the husband's estate by her or the children thereafter, to the special case of a policy of assurance. A policy belonging to the wife at marriage might either be on her own life or on that of a third party. If either by a third party's deed of gift, or by her own marriage contract, the husband's rights were excluded from the policy, there could be no question as to her right to deal with it. And the same result would, I apprehend, have followed though the policy had been taken out by the wife herself after her marriage, if the premiums were paid with the interest arising,

or savings effected, from property free of the husband's rights; because it is, I think, settled that savings from the interest of separate estate cannot be claimed by the husband any more than the principal itself can be claimed (*Fraser on Husband and Wife*, pp. 699, 814; *Davidson* v. *Davidson*, 5 M. 710). There remains the usual case of an ordinary policy belonging to the wife at her marriage, or effected afterwards in her favour or in favour of the children on the life either of herself or her husband, with funds which, either actually or by implication of law, belonged to the husband. In the case of children the main question was whether, by delivery or some equivalent, an irrevocable right had been created in their favour. But in the case of the wife a further and more subtle difficulty arose. It was evident that the right conferred by a policy which was contingent upon the continued payment of premiums, and which could not be made effectual till the dissolution of the marriage, was something quite different from ordinary debts or estate. By the law of England such a "*chose in action*," as it was termed, does not seem to have become the property of the husband till he had reduced it into possession, which it was not always possible to do; and as, failing such reduction, the wife, if she survived, took the whole benefit, she had, even in case of reduction, no equity to a settlement, because in the words of the English writers, "she had something better under her right of survivorship." In Scotland the same difficulty did not exist, because no act was required to complete the husband's right: but the question was whether the interest in a policy was such that it could be said to fall under the *communio bonorum* at all. Assuming this question to be answered in the affirmative, the question still remained, in the case of policies taken out by, or with the consent of, the husband in favour of the wife after the marriage, whether the sum secured did not form an onerous provision which could not be revoked, either by the husband or his creditors. These questions were carefully considered in a series of cases decided prior to the passing of the Statute in 1880; and to these I may shortly direct your attention.

Before taking up these cases, however, it may be useful to note a couple of decisions in which the quality of an interest under a policy was considered apart from family relations. There was never any doubt that it was capable of assignation, just as according to the law of Scotland a mere *spes*, such as a hope of succession, may form the subject of a valid sale. But the interest under a policy was something more than a *spes successionis*; for while a *spes successionis* is incapable of being attached by diligence, and does not fall to the trustee in a sequestration (*Reid* v. *Morrison*, 20 R. 510), it was early decided otherwise with regard to a right under a policy. Thus in the case of *Strachan* v. *M'Dougle* (13 S. 954),

it was decided that arrestment was a competent diligence to affect the sum due under a policy; and in *Bankhardt's Trs.* v. *The Scottish Amicable Society* (9 M. 443), it was again held that a creditor could arrest the interest held by a debtor in a mutual insurance company, and realise the same by sale, surrender, or otherwise, and that independently of the term for payment of the premium having arrived before realisation. Similarly, the principle that a policy forms a valuable and realisable asset before the date of payment was given effect to the following year, in the case of *Pringle's Trs.* v. *Hamilton* (10 M. 621). Two policies had there been taken out on the life of the wife payable to trustees for behoof of the husband, who predeceased his spouse; and it was held that they formed part of his moveable estate and fell to be included at their real actuarial value in fixing the fund for legitim. But though the interest under a policy was thus capable of being affected and realised before the term of payment arrived, the question still remained whether it fell under the *communio bonorum.* This was considered and decided in the negative in the case of *Wight* v. *Brown* (11 D. 459). There a husband effected the assurance on the life of his wife in his own favour. The wife died, and her representatives claimed a share of the proceeds of the policy as having formed part of the goods in communion. But the Court rejected the claim on the ground that the husband's interest, though assignable and attachable, was a contingent right and was not properly capable of use or enjoyment during the marriage. That this decision depended solely upon the narrow construction put by the Court on the *communio bonorum,* is still more apparent from the case of *Muirhead* v. *Muirhead's Factor* (6 M. 95). There the policy was effected by the husband on his own life, and the sum insured made payable to his executors and assignees. On his death his wife was found entitled to a share of the proceeds *jure relictae,* because, although on the authority of *Wight,* they were not embraced in the *communio bonorum,* still they fell into the executry against which the wife's claim was prestable. The distinction thus drawn between the claim of a wife who survives her husband, and that of her representatives when she predeceases him, seems somewhat fine; but the authority of the case of *Wight* receives some apparent confirmation from the next two cases I shall refer to, into which, however, the principle of donation also enters. The first of these was the case of *Galloway* v. *Craig* (22 D. 1211; 4 Macq. 267), decided by the House of Lords in 1861. There the policy bore to be effected by a wife with consent of her husband on the husband's life, and to be payable to her and her heirs, executors, or assignees. The husband paid the premiums, though the receipts were taken in

name of the wife. The husband was sequestrated and shortly afterwards died. In a question between the wife and the trustee on the husband's bankrupt estate, it was held by the House of Lords, reversing the decision of the Inner House of the Court of Session and reverting to that of the Lord Ordinary, that the whole proceeds fell to the wife. The decision of the Lord Ordinary was based partly on the ground that the policy did not, on the authority of *Wight* v. *Brown*, fall within the husband's estate, because it was not exigible till after the husband's death, even though, with the husband's consent, it might have been transferred or surrendered before that time; and partly on the ground that it was an onerous provision and not a donation, and was therefore irrevocable by the husband or his creditors. There was nothing in the case to show that delivery had taken place; but perhaps it was considered unnecessary, as the policy *ex facie* bore to have been effected by the wife. The ground of donation was more relied on in the House of Lords. But as has been already pointed out, no provision in favour of a wife will be sustained in so far as it takes effect during the husband's life; and it was therefore an essential condition of both grounds of judgment that the provision should be held to have no effect till the dissolution of the marriage—a condition that seems somewhat unsubstantial under the modern facilities for surrender. The point was carefully considered in the next case that came up, viz.:—*Smith* v. *Kerr*, 7 M. 863, decided in 1869. In this case the policy, which bore to have been effected by the wife on her own life with consent of the husband, was made payable to her and her heirs, executors, successors, and assignees. The premiums were paid by the husband. The wife having died, a question arose as to whether the proceeds of the policy belonged to her estate or to the husband. The Court held that the proceeds of the policy belonged to the heirs *in mobilibus* of the wife, on the same double ground as in the case of *Galloway*, viz.: (1) that the policy did not fall within the *communio bonorum*; and (2) that even if it did, the husband had made a donation of it to the wife. The husband not being bankrupt, the question of the irrevocability of the donation did not arise for decision; but in considering whether the sum assured could fall under the *communio bonorum*, the Lord Justice-Clerk discussed very fully the question whether the instrument could be said to create a right, except on the contingency of the death of the assured. This question he decided in the negative, on the ground that, though a surrender value might have been obtained, the right to surrender was not a part of the contract, but was an equitable remedy given by the assurers. This reasoning would scarcely seem to apply to many modern policies, in which the surrender value is stated *ex*

facie of the policy, and can be enforced against the company. But in a question as to the irrevocability of a provision of this kind, the difficulty might probably be overcome by holding that what the Court will look to is not so much what might possibly be done with the policy, as what the leading terms of the policy show the *intention* of the parties to have been (see *Bell's Principles*, § 1550). These cases were followed by that of *Thomson's Trs.* v. *Thomson* (6 R. 1227), in which the circumstances of the policy were precisely similar to those in *Smith* v. *Kerr*, with this addition, that the wife had, in an antenuptial marriage contract, conveyed all her acquirenda to the husband, who had used the policy as a fund of credit, and had, after the date of the policy, executed a general disposition and settlement in favour of trustees. It was held that none of these specialities was sufficient to prevent the operation of donation, and that the wife's representatives took not only the principal sum in the policy, but all bonus additions to it.

As regards the interests of children in a policy of assurance, there is only one case to be noted, that of *Jarvies' Trs.* v. *Jarvies' Trs.* (14 R. 411), which affirmed the principle already adverted to, that delivery of the document is necessary in order to constitute any indefeasible right in the children. There a policy had been taken out by a husband on his own life, and the sum made payable to certain trustees for behoof of his wife and children. For fifteen years it remained in possession of the husband, the trustees not even being aware of its existence. Then the husband took an assignation from the trustees and the children of their interest in the policy. He died shortly afterwards, having granted a trust deed for behoof of his creditors. It was argued for the children that no delivery was required, because the payment of the premiums was an irrevocable transfer of funds into the hands of a third party for behoof of the wife and children, and because the father was the natural custodier of the policy. In any case, it was urged that the intimation made to the trustees when the assignation was taken from them, was sufficient to put the funds beyond the husband's power. But the Court decided in favour of the trustees, on the ground that delivery was necessary and had not taken place.

From the summary of the prior cases, we are now in a position to appreciate the precise nature of the changes introduced by the new Statute. Observe then the terms of the enactment. The preamble—which has now, however, been repealed—set forth that, whereas by the *Married Women's Property Act*, 1870, increased facilities were given for effecting policies of assurance for the benefit of married women and children in England and Ireland, and it was expedient that such increased facilities should be extended to Scotland, the following provisions should take effect:—

I. *Married woman may effect policy of assurance for her separate use.*—A married woman may effect a policy of assurance, on her own life or on the life of her husband, for her separate use; and the same and all benefit thereof, if expressed to be for her separate use, shall, immediately on being so effected, vest in her, and shall be payable to her, and her heirs, executors, and assignees, excluding the *jus mariti* and right of administration of her husband, and shall be assignable by her either *inter vivos* or *mortis causa* without consent of her husband; and the contract in such policy shall be as valid and effectual as if made with an unmarried woman.

II. *Policy of assurance may be effected in trust for wife and children.*—A policy of assurance effected by any married man on his own life, and expressed upon the face of it to be for the benefit of his wife, or of his children, or of his wife and children, shall, together with all benefit thereof, be deemed a trust for the benefit of his wife for her separate use, or for the benefit of his children, or for the benefit of his wife and children; and such policy, immediately on its being so effected, shall vest in him and his legal representatives in trust for the purpose or purposes so expressed, or in any trustee nominated in the policy, or appointed by separate writing duly intimated to the assurance office, but in trust always as aforesaid, and shall not otherwise be subject to his control, or form part of his estate or be liable to the diligence of his creditors, or be revocable as a donation, or reducible on any ground of excess or insolvency; and the receipt of such trustee for the sums secured by the policy, or for the value thereof, in whole or in part, shall be a sufficient and effectual discharge to the assurance office: Provided always, that if it shall be proved that the policy was effected and premiums thereon paid with intent to defraud creditors, or if the person upon whose life the policy is effected shall be made bankrupt within two years from the date of such policy, it shall be competent to the creditors to claim repayment of the premiums so paid from the trustee of the policy out of the proceeds thereof.

III. *Application and short title of Act.*—This Act shall apply only to Scotland, and may be cited as the Married Women's Policies of Assurance (Scotland) Act, 1880.

So far as the rights of the wife are concerned, it will at once be evident that section 1, however useful it might be before the abolition of the *jus mariti*, was, after the passing of the *Married Women's Property Act* of 1881, of little independent use. In short, it may be regarded as an instalment of the more general protection afforded to married women's property by the Act of 1881. In one respect, however, a policy of assurance would seem, under the Act of 1880, to have a special privilege. Under the Act of 1881, as we have seen, the husband's right of administration is only partially abolished: a wife still requires the consent of her husband to dispose of her estate. But in the case of a policy she is entitled, under the section now under consideration, to assign it without any consent.

The change in the law effected by section 2 is much more important. It is true that in the cases of *Galloway* v. *Craig*, *Smith* v. *Kerr*, and *Thomson's Trs.* v. *Thomson*, policies taken payable to the wife were held to be donations which might be effectual even against creditors. But a heavy onus rested upon the wife who wished to bring herself under the rule of these decisions. In

all cases it was necessary for her to prove delivery, actual or constructive, and where she wished to establish her right as irrevocable at the instance of the husband or his creditors, she had in addition to prove that the husband had intended it as such, that he was not insolvent at the time of granting it, and that it did not exceed the measure of a reasonable provision. The Act vests the right to the policy in the wife free of all such proof. Though it thus defines her rights, it does not, however, secure her against her own acts. This question was raised in the case of *Schumann* v. *Scottish Widows' Fund Society*, 13 R. 678, decided in 1885. There a husband had insured his life under the Act for the benefit of his wife; and the husband and wife together wished to surrender the policy. In a question as to whether the insurance company were in safety to pay, it was argued that the object of the trust constituted by the Act was to protect the wife against matrimonial importunity, and that the trust could not be put an end to even with the concurrence of both. But this contention was not sustained.

As regards the rights of children, the chief effect of the Act is to prevent the provision being challenged on the ground of insolvency, and to dispense with the necessity of delivery which was formerly required in order that the interests of the children should be secured.

Coming now to the interpretation of the Act itself, it will be convenient to group the various questions according as they arise (1) out of the issue of the policy; (2) during its currency; or (3) at its termination.

Questions arising out of the issue of the Policy.

1. The first question that arises is as to the person by whom a policy can be taken out under the Act. The Act itself specifies married women and married men, and under the second section it becomes a matter of practical moment whether the benefits of the Act are to be extended to policies taken out by unmarried men or widowers. In a recent decision of the Second Division of the Court of Session (*Kennedy's Trs.* v. *Kennedy*, 33 S.L.R. p. 89) it was held that a widower was entitled to take out a policy under the Act: and in the course of the discussion of the case it was suggested from the Bench that the Act might possibly extend to the case of policies originally effected by a man who had never been married. The Act would of course have no effect before marriage. But it was suggested that the payment of premiums necessary to maintain the policy after that date would be sufficient compliance with the Statute. In England this has been provided for in the Act of 1882, which omits the term "married" occurring in the Act of 1870. But in Scotland, in the meantime, it would not be prudent to rely on the fact of marriage validating a policy

originally taken out by a bachelor. An arrangement should be made on marriage, with the insurance company, to issue a policy *de novo* under which credit will be given for past premiums. This, it would seem, is a usual course (*Holt* v. *Everall*, L.R. 2 C.D. 266).

Questions may also arise as to the person by whom a policy is to be deemed to have been effected. The wife may be named in the policy as the contracting party, while the premiums are really paid by the husband. In these circumstances who is to be taken as the party effecting the insurance? If the wife's name appears in the contract, does the first section apply independently of the source from which the premiums have been derived? In the case of *Holt*, which arose under the second section, the Court allowed inquiry into the source of the premiums: and they would no doubt adopt the same course under the first section, if the source from which the premiums had come were material. In considering whether it is material, I think that a distinction must be drawn according as the husband's money has been taken with or without his consent. If the premiums were paid out of the husband's funds without his knowledge, I think he would be entitled, in a question with the insurance company, to dissent from and avoid the contract (*Bunyon on Life Assurance*, 473). But, especially where the policy had subsisted for some time, the Court would narrowly scrutinise the husband's averment of want of consent, and would easily give effect to the plea of tacit recognition. In any case, it would be advisable for an insurance company to satisfy itself either that the premiums come from the wife's funds or that the husband is a consenting party to the contract. If, on the other hand, the policy were effected with the funds of the husband with his consent, the question still remains whether the first section is effectual to bar revocation on the ground of donation *inter virum et uxorem*, at his instance or at the instance of his creditors. In view of the fact that the Act was passed before the *jus mariti* was abolished, I think that the section must have been intended to apply to the case where the premiums came from the husband's funds. In short, wherever the wife's name appears in the contract, I think that the section applies to the effect of securing the policy, except in the single case where the premiums have been unlawfully abstracted from the husband's funds. Of course these observations would not apply to a case where the whole transaction was a mere fraudulent device to defeat the husband's creditors.

The Act would seem to apply to foreigners. In *Schumann* v. *Scottish Widows' Fund Society*, the policy had been taken out by a merchant, domiciled in Hamburg, for behoof of his wife, and the case was decided on the footing that the insurance had been properly effected under the Act.

Difficult questions may also arise under the second section if the person effecting the insurance is bankrupt or insolvent; but these will generally emerge, not at the issue of the policy, but during its currency. Consideration of them may accordingly be deferred.

2. The next question that arises is as to the person on whose life the assurance can be effected. The only point to be noticed here is the somewhat remarkable omission of section 2 to provide for the case of a wife insuring her life for behoof of her husband or children. This has been duly provided for in the last English Act of 1882. The explanation of its omission in the Scots Statute probably lies in the fact that at the time when the Act was passed the *jus mariti* had not been abolished, and the duty of providing for the family was not recognised as falling on the wife.

3. With respect to the parties for whose behoof a policy can be taken out under the second section, it is clear that the possible beneficiaries are restricted to wives and children. But difficulties may arise as to the wife of a subsequent, or the children of a preceding or subsequent marriage. The first question is whether they can be included, and the next is whether special terms are required to include them. The answer to the first of these questions depends upon the question already discussed, whether the benefits of the section are extended to those who were widowers or unmarried when the insurance was first effected. If the benefits of the Act are extended to widowers, as has been decided, but not to unmarried men, I think the sole possible beneficiaries will be existing children, because as regards a subsequent marriage I do not see why a widower should be in any better position than a man who is unmarried. If, on the other hand, the section covers policies effected by unmarried men, the children of a preceding, or the wife or children of the then existing, or of a subsequent marriage, would all be possible beneficiaries. Though they would all be possible beneficiaries, I think, however, that in one case, at any rate, special descriptive terms would be required to include them: thus the term "wife," would, in my opinion, where there was an existing marriage, be presumed to refer to the wife of that marriage, unless there were terms used—*e.g.* "any surviving wife"—sufficient to displace the presumption.

4. The last question which we shall discuss with reference to the issue of the policy relates to the meaning of the term "policy," and raises the important point whether endowment policies are entitled to the benefit of the section. Let us take first the simple case of a policy on the husband's life taken made payable to the wife at the expiry of a fixed number of years, or at such earlier period as her husband shall die. It will be seen

that such a transaction is of a double nature. It includes an assurance proper against death for a stated period, and an endowment payable only if the assured survive the given period. To the first of these objects, if it stood alone, I do not see why the Act should not apply. But the latter seems rather a form of investment than of insurance. It consists of a provision payable at a fixed time and altogether independently of the death of the assured. I do not think that the trust provided by the section in question can be extended to secure such a provision. Assuming then that this is so: that to one object of the policy the Act is applicable while to the other it is not: what shall we say of the objects in combination? Is such a policy entitled, in any degree, to the protection of the Statute? Is the wife's interest indefeasible at the instance of creditors until the occurrence of death, or the lapse of the stated period, determines under which category the transaction is to fall? Or is her interest entirely unprotected? In support of the last proposition it would no doubt be argued that, under the law regulating post-nuptial marriage contracts, only those provisions in favour of the wife will be sustained which take effect after the husband's death; that the Act contemplates provisions of a like nature; and was not therefore meant to apply to a case where the provisions may take effect sooner. But such an argument must be accepted with reserve, because, as we shall shortly see, it is perfectly possible, even in the case of a policy expressly effected under the Act in favour of the wife, for the spouses to make it available at any time by enforcing its surrender. Nor do I think there is much force in the argument that one contingent object being without the Act, the whole trust is excluded. It is clear, I think, for example, that a man might give himself a reversionary interest in a policy on the failure of his wife and children without excluding the policy from the benefits of the Act. In such a case his creditors could attach his reversionary interest, but nothing more. After all, we must return to the statutory words, "A policy of assurance effected by any married man on his own life." In my opinion, these words are applicable to an endowment policy in so far as it does consist of a life assurance proper, even though it be for a limited time. The beneficiaries' interests could not be affected by the husband or his creditors, who could only actively intervene when the survivance of the husband finally withdrew the sum in the policy from the protection of the Act.

If the policy, as often happens, instead of being taken in favour of the wife in either contingency, was made payable to the assured himself on his surviving a fixed date, or to his wife in the event of his predeceasing it, I think the same results would follow as in the last case.

Questions arising during the currency of the Policy.

These usually concern either (1) the right to surrender the policy; (2) the right to sell and burden it; and (3) the rights which arise in the case of fraud.

1. The right to surrender a policy effected by a husband for behoof of his wife, is one of the few points that has come up for decision in Scotland under the Act. It arose and was affirmed in the case of *Schumann* v. *Scottish Widows' Fund Society* (13 R. 678), in which, as already narrated, an application was made for surrender by the husband as trustee, with concurrence of the wife as sole beneficiary, under the trust created by the policy. In deciding that the assurance company were bound to accept a surrender, the Court proceeded chiefly on the provision of the section that, "The receipt of such trustee for the sums secured by the policy, or for the value thereof, in whole or in part, shall be a sufficient and effectual discharge to the insurance office." These words were interpreted as necessarily pointing to some such transaction as a surrender. Emphasis was also laid upon the absolute nature of the right conferred upon the wife. The Lord President said: "It (*i.e.* the policy) is to be a trust for her benefit, for her separate use, which I understand to mean that it becomes her property, and is at her disposal." And similarly Lord Adam: "That indicates very clearly that she is to have the sole beneficial interest in it; and if that is so, I can see no reason why she, having the sole beneficial interest, may not deal with it as she thinks proper." Now, the effect of this reasoning is to show the importance of the wife's concurrence in the company's discharge. But it is evident that, if the former ground of judgment is valid and the section confers a statutory immunity upon insurance companies paying to trustees nominated under the policy, no concurrence by the beneficiary is required. Lord Shand, in his opinion, accordingly said: "Here the husband and wife concur in asking for the value of the policy; but I am prepared to go further and hold that even if the wife did not concur, the receipt of the trustee would be a sufficient discharge to the insurance company."

The question, whether the receipt of the trustee alone is a sufficient discharge, becomes of essential importance in the case of policies wholly or partly in favour of children, whose valid concurrence it may be impossible to obtain. In their case, some of the reasoning used by the Lord President in the above case is specially applicable. Discussing the policy there in question, "apart from the words of the Statute," he says: "Suppose, then, that the husband does not pay the premiums, is unwilling or unable to pay them, and that they are not paid by the wife or some other person, what is to be done? The policy, we shall

suppose, has subsisted for some time, and therefore has a value. If the premiums are not paid, the policy will lapse and the value will be lost. Would it not be lawful for the husband, in these circumstances, to surrender it? or rather, would it not be absolutely his duty to do so? I think it would most certainly be his duty to make the most of the policy by surrendering it. . . . Suppose that the husband has become bankrupt. . . . If there are no other funds, are the family not to be able to make this value available? Are they to starve? The husband again may become incapable or lunatic. Is the wife not to be able to surrender the policy, or to go through the form of appointing a new trustee who may surrender?" These citations, I think, make it comparatively clear that the Lord President would have gone far in affirming Lord Shand's opinion had the facts of the case made it necessary to do so. In any case, as in my opinion Lord Shand's dictum is the logical result of the construction of the words of the section adopted by all the judges, I think it may be affirmed that, in the general case, trustees under the Act have power to surrender. The only doubt arises in the very circumstance which occurred in *Schumann*, of the father himself being trustee. As will be pointed out hereafter, it is not safe in the general case to make payment to the father of debts due to his children. Meantime, there is the warrant of Lord Shand's opinion for saying that in the case of a policy under the Act, there is no difference between a father and any other trustee. But in cases where insurance companies have to rely on the receipt of the trustee alone, it would be prudent to insist on the appointment of a third party as trustee to give them a discharge.

2. The question as to the right to sell or burden a policy may be most conveniently looked at from the point of view of the purchaser or lender. A purchaser must of course be a third party; a lender may be either a third party, or the insuring company, or the trustees under the policy themselves: and the form of the security will vary accordingly. If the advance is made by a third party, he will take an assignation from the trustee, or the beneficiaries, or both: if by the trustees, they will simply debit the advances against the fund for which they are accountable; if by the insurance company, they may rely upon their right established by the case of *Borthwick* v. *Scottish Widows' Fund* (2 M. 595), to set off any debt due by the party in right of the policy against the sum payable thereunder; or they may take in addition a deed of consent from the beneficiaries. But whatever be the form of the security, the substantial question as to its validity is in all cases the same, and must depend upon one or other of three things: (1) The power of the trustee to realise or burden the trust fund upon general principles of trust law; (2) his special power to do so, if any, under the Statute; or (3) the power of the benefici-

aries, as such, effectually to dispose of, or burden their respective interests. On the first of these I think it would be very hazardous to rely. At common law a trustee has, indeed, power to sell moveable property or pledge it in security of advances (*Maclaren on Wills*, ii. 1186, 1191), and there is nothing in the Act expressly to limit the common law rights of a trustee. But the common law power seems to arise as a necessary incident of ordinary trust administration. Even the right of trustees to uplift, discharge, or assign debts is, by the *Trusts (Scotland) Act*, 1867 (30 *and* 31 *Vict.* c. 144, § 2), limited to such acts as are not in variance with the terms or purposes of the trust. Now, in the case of a policy taken out under the Act now in question, not only does no administration seem to be contemplated until the policy is payable, but the purpose of the trust is to maintain the policy.

The question whether the Statute confers a special power on the trustee to sell or burden the policy, seems at first sight closely analogous to that decided in *Schumann*. But I do not think that that decision can be held to rule it. Viewed as an act of administration, it is perhaps a more drastic exercise of power to surrender a policy than to use it as a fund of credit. But the statutory indemnity is confined by the Act to the case of an insurance company which gets from the trustee a receipt for the sums in the policy or the value thereof: and I do not think it is possible to apply these words to a sale transaction with a third party, or to a loan transaction with anybody.

There remains the question whether the concurrence of the beneficiaries can validate the transaction. If the wife is the sole beneficiary under the trust, I think that the opinions of the judges in *Schumann* are conclusive to the effect that she can deal with it as she pleases, and the same observation would apply in the case of children if they were *sui juris*, and capable of entering into unchallengeable transactions. If, however, the children contemplated by the policy are in minority, or still unborn, a question of greater difficulty emerges. In the first place, in the case of a policy in favour both of wife and children it seems doubtful what the interests of the respective beneficiaries are. This question I shall deal with later. Assuming, however, meanwhile, that in such a case the wife has some vested interest, I think she can clearly deal with it, though it should be kept in view that her interest may as hereinafter shown be liable to diminution by subsequent births. But what of the children's interests? If they are yet unborn, I take it there can be no question. Suppose, however, that they are in existence: and take first the case of a loan over a child's interest. The question is: Can such a loan be effectually secured by an assignation or deed of consent, if the child is a minor, by such minor, with consent of his curator; or if he is a pupil, by his tutor

for his behoof? To this question the answer must, in the general case, be in the negative. If the child is prejudiced through the money being misapplied, he has always the remedy open to him of reduction on the ground of minority and lesion. It is not, of course, every lesion that will entitle a child to restitution. When, as in the case under consideration, the injury arises not directly from the transaction itself, but from subsequent misapplication of the money, the question comes to be whether the lenders should have allowed the money to get unfettered into the guardians' hands. This is to a large extent a question of circumstances. As a rule, however, the guardian will be either the father or mother: and the older cases show that even a debtor, who is bound to pay, must exercise great care in handing over money belonging to the child on the receipt of the father—as *e.g.*, by exacting caution where the father is known to be in straitened circumstances (*Stevenson's Trs.* v. *Dumbreck*, 19 D. 462; 4 Macq. 86): and in recent practice the Court has frequently, though the father was alive, appointed a trustee or factor to give a discharge for sums payable to children under a trust, and even for sums awarded to children in name of damages where substantial (*Sharp* v. *Pathhead Spinning Co.*, 12 R. 574, and many unreported petitions). In such a case as a loan over a policy effected under the Act of 1880, I think a peculiar duty rests upon the lender, because (1) it is not a case of an ordinary payment by a creditor which he is bound to make; and (2) the very fact that a loan on such a security is desired, is sufficient to imply, apart from any special knowledge which the lender may possess, that the father is in straitened circumstances, and that additional precautions should therefore be taken. But though it is thus impossible to obtain an absolute security over a child's interest in a policy, independently of the particular circumstances of the case, it by no means follows that such an interest cannot be safely used as a fund of credit at all. If, for example, the money advanced is employed for the child's benefit, the transaction cannot be impugned. And the rule above set forth only therefore amounts to this: that to make himself secure, a lender must see that his money is beneficially employed for the child's behoof. Now there is at least one case where I think that the fact of beneficial employment would be invariably presumed, and that is where money is advanced to pay the premiums necessary to keep up the policy. Various other cases might be figured, but they necessarily involve a greater or less amount of risk. Outsiders cannot superintend the application of the funds; and the trustees, who can do so, supposing they advanced the loan themselves, might be mistaken in their opinion of what beneficial employment was. If the amount

is sufficient to justify such a course, application might be made to the Court to authorise the trustees to sell or burden the policy, in which case the security would of course be unexceptionable. In a recent case in Ireland, marriage contract trustees to whom a policy had been conveyed, received power to dispose of it, and to obtain a fully paid-up policy in lieu thereof (*Stern* v. *Peebles*, 25 L.R. Ir. 544). And the method adopted in that case to prevent the policy from lapsing points to what is perhaps the best course to follow, where the proceeds of the policy are not required for the actual maintenance of the beneficiaries. In such a case the assignation of the old policy will of course be outright. Otherwise, the validity of a complete assignation will seldom, if ever, arise for consideration, because the risk will so far diminish the price that a surrender of the policy will be preferred.

3. The remedy in the case of an attempted fraud upon creditors by means of a policy under the second section, is provided by the section itself, which declares that, while a policy shall not be reducible on any ground of insolvency, if the policy is effected, and premiums paid with intent to defraud creditors, or if the assured is made bankrupt within two years from the date of the policy, it shall be competent to the creditors to claim repayment of the premiums out of the proceeds thereof. What is the precise nature of the remedy thus provided we shall afterwards consider. Meantime, let us inquire what are the cases in which the remedy, such as it is, is available. In case of bankruptcy, the effect of the section is quite clear if the premiums have come out of the husband's estate. But what if they have been derived from the wife? In England it has been decided by the case of *Holt* v. *Everall* already cited, that even where a policy in favour of the wife bears to have been effected by the husband, the Court will inquire into the source from which the premiums have been derived, and if they have come from the wife's estate will refuse the claim of the husband's trustee in bankruptcy. What amounts to fraud under the section is a more difficult question. At common law, all gratuitous alienations of property during insolvency, including post-nuptial provisions to wives and children, are challengeable by creditors, on the ground of constructive fraud (*Goudy on Bankruptcy*, p. 24). In other words, the creditor has only to prove two facts: insolvency, combined with the gratuitous nature of the alienation; and the fraud which is necessary to entitle him to set aside the transaction is then presumed. The general effect of the section is, it appears to me, to take away this presumption in the case of policies of insurance. In other words, in their case, actual intentional fraud must be proved. What will amount to such fraud is, of course, entirely a question of circumstances, and

no general rule can be laid down. When the policy is effected by means of a one-payment premium, it will still be entitled to the protection of the Act, though necessarily the circumstance of a large payment being made will, when combined with insolvency, more easily infer fraud. Similarly, I think that the holder of an ordinary policy—which has already acquired a surrender value —might gain for it the protection of the statute by converting it into a wholly or partly paid-up policy under the Act. In the case of *Holt* v. *Everall*, where an arrangement of this kind was made, it seems to have been assumed that had the old policy had a surrender value, its conversion into a new policy under the Act would have amounted to a settlement in favour of the wife, which would not have been entitled to the protection of the Married Women's Property Act. But the reasoning was based on the provisions of the English Bankruptcy Act, and would not, I think, be held applicable in this country.

As to the remedy in case of fraud, the section prescribes that it shall be competent to the creditors to claim repayment of the premiums from the trustee of the policy out of the proceeds thereof. This implies that the creditors, as in the case of an ordinary policy, can enforce payment by sale, surrender, or otherwise. If it were found expedient to borrow the amount necessary to discharge the creditors' claims, I think that it would be a clear case of beneficial expenditure, and that the trustees could, for the purpose of meeting it, grant a valid security over the policy.

Questions arising at termination of the Policy.

The first question relates to the parties to whom the sums due under the policy are payable. By the second section it is provided that the policy shall vest in the person effecting the policy and his legal representatives in trust, or in any trustee nominated in the policy or appointed by separate writing duly intimated to the insurance office. From the recent case of *Kennedy's Trs.*, already cited, it would appear that a general nomination of trustees in a settlement will not be sufficient, but that the trustees must be appointed expressly with reference to the policy. In England, the recent case of *Davies* v. *Davies* (1892, 3 Ch. 63), though very special in its circumstances, is illustrative of the same rule. If no trustees are nominated in the policy, and the insurers have no notice of any separate appointment, they may safely pay to the executors of the person whose life is assured; but in no case should they pay directly to the beneficiaries, as the trustees or executors may have claims or expenses to deduct before distributing the money.

A still more important question relates to the parties among

whom, and the shares in which, the proceeds of the policy are divisible by the trustees. This, of course, depends upon the terms of the destination. The words used in the Act itself are "for the benefit of his wife or of his children, or of his wife and children." If the policy is in favour of the wife alone, no difficulty can arise. If it is in favour of the children of the marriage, and some have died leaving wills or issue, the question will arise as to when the right to the proceeds vested. Now, in the case of provisions to children as a class, the general rule is in favour of immediate vesting, the rights of the individual members of the class being provisional and subject to the emerging claims of other members who may afterwards come into existence (*Maclaren on Wills*, II. 786). In the case of a policy it might indeed be argued that the contingent nature of the right itself operated to prevent vesting. But the result of that construction would be to prevent the policy or its proceeds being used in any way, except under cover of the statutory indemnity, until the husband's death—a result, in my opinion, entirely at variance with the decision and the reasoning of the judges in the case of *Schumann*. I think, therefore, that in the case figured the proceeds would be payable to the surviving children, and the heirs of those who had predeceased. If, again, the policy, adopting the words used in the section, is expressed to be in favour of the "wife and children of the marriage," a more difficult question arises, because, to use the words of the late Lord President in the case of *Jarvies' Trs.* v. *Jarvies' Trs.* (14 R. 411), "that is a curious phrase, and one unknown in practice," and in England it has received various and contradictory interpretations. In the first case (*Mellor's Policy Trusts*, L.R. 6 C.D. 127, and 7 C.D. 200), it was ultimately held that the fund fell to be divided as on intestacy. In the next (*Adam's Policy Trusts*, L.R. 23 C.D. 525), Justice Chitty, while finding it unnecessary to decide the point, expressed the opinion that the wife took a simple liferent, the fee going to the surviving children. In the third (*In re Leyton*, L.R. 34 C.D. 511), Justice North decided that the destination created a joint tenancy in the wife and children—in other words, that the fund fell to be equally divided among those of the wife and children who survived the husband. This decision has since been followed by Justice Chitty, notwithstanding his previous opinion to the contrary (*In re Davies' Policy Trusts*, 1892, 1 Ch. 90). The only Scotch decision on the point is that of Lord Maclaren in the Outer House in *Jarvies' Trs.*, and he held that all the donees must share equally. As regards equality of division, Lord Maclaren's opinion thus coincides with that of Justices North and Chitty, and may be accepted as authoritative. As regards the date of vesting, the principle of accretion given effect to in the English cases depends

upon the English law of joint tenancy, and would not, I think, be applied here. The result is, that the widow, under such a destination, stands in the same position as any of the children—her share, like theirs, vesting at once, but being subject to diminution through the birth of other children.

If any bonus additions have accrued on the policy, they will fall to be treated in the same way as the principal sum secured. (*Thomson's Trs.* v. *Thomson*, 6 R. 1227.)

If any of the beneficiaries are minors, the trustees should insist on a discharge from a factor or properly appointed guardian. A discharge by the mother, though now a legal guardian of her children, is not, as already pointed out in the case of a father, to be relied on.

If there are any other beneficiaries named than the wife and children of the truster, they will not be entitled to the protection of the Act. The destination in the policy may probably operate as a testamentary bequest in their favour, but their shares will be subject to the debts of the truster, and the trustees should pay their shares to the truster's executors to be distributed.

If for any reason the purposes of the trust fail, the proceeds of the policy will, on ordinary principles of trust law, enure to the truster and his representatives (*Maclaren on Wills*, ii. 1062). The point recently arose in England in connection with the celebrated *Maybrick* case. Mr. Maybrick had effected a policy on his life for £2000 for the benefit of his widow; and on his executors suing for the proceeds, the insurance company pleaded that it was contrary to public policy that the widow, who had been convicted of murdering her husband, should be able to recover. The Court held that though this might be a good answer by the husband's representatives in a claim at the instance of the widow, it afforded no defence to the insurers in a claim at the instance of the representatives (*Cleaver* v. *Mutual Reserve Fund Life Association*, 1892, 1 Q.B. 147). The trust created by the policy in favour of the wife having become incapable of being performed by reason of her crime, the result was that the insurance money simply formed part of the estate of the assured. Reference was made in the judgment to a provision in the English Statute, omitted in the Scotch Act, to the effect that the moneys payable under the policy should not form part of the estate of the insured, "so long as any object of the trust remained unperformed." That, it was said, necessarily implied that when no object of the trust remained unperformed, the money should form part of the truster's estate; but the decision proceeded mainly upon general grounds, independent of the terms of the section. "Whenever," said Lord Justice Fry, "there is property produced by the payments of A, which is held in trust for B, and that trust fails or is satisfied, a

resulting trust arises for A in his estate." This general ground of judgment applies with equal force in this country.

These are some of the questions which a consideration of the Act suggests. In conclusion, I must however again remind you that the common law, which preceded it, may still be of importance. Various instances have been given above of attempted trust-policies, to which in my opinion the Act would not apply. But they may constitute valid trusts at common law. And in considering whether they are effectual to do so, you will still have recourse to the principles and authorities discussed in the earlier part of the Lecture.

Note on the Rate of Mortality in Sierra Leone

BY

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Note on the Rate of Mortality in Sierra Leone.

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HAVING recently had occasion to deal with some statistics relating to lives resident in Africa—principally missionaries and traders—and being much struck with the exceedingly heavy mortality experienced by them, I thought a few notes on the subject might interest the members of this Society.

The source from which I obtained the necessary data is a book by the Right Reverend E. G. Ingham, Bishop of Sierra Leone, entitled *Sierra Leone after a Hundred Years*, and published this year by Seeley and Co. of London. The greater part of the book is taken up with an account of missionary work, which, however important it may be in its own place, does not at present concern us; but on pp. 200-208 inclusive, there are some figures which are quite a "find" from an actuarial point of view. They consist of a list of 113 European missionaries who went out to Sierra Leone, with dates of the commencement of their residence in Africa, and of the termination of residence there by death, or by the missionary returning home. The majority of them appear to have lived in Sierra Leone itself, which has a notoriously deadly climate, though a few seem to have gone to places in the neighbourhood; and I think that an examination of the figures will convince any one that that town fully deserves its name of "the white man's grave," besides giving an approximate measure of the risk incurred by Europeans living there. Unfortunately, the particulars given are not quite complete; the dates of termination of residence in Africa being omitted in eight cases, and the dates of death in two cases. Also in one case, although the date of termination of residence in Africa is given, that of its commencement is omitted. Still there are quite enough facts to work with; and, having tried several assumptions with regard to the missing dates, I have satisfied myself that it will not materially affect the results if all these cases are omitted, and I have accordingly dealt only with the remaining 102 lives where the dates of commencement of the risk, and its termination by death or "exit," are given. I use the word "exit" as a convenient and well-known term to express the termination of

a risk otherwise than by death; for example, by a missionary having returned to this country and so passed out of observation. As all the dates are not given in full, sometimes the year only of entry or exit being stated, I have assumed the exact date to be the 1st of July in such cases, as that will probably on the average give the best approximation to the facts; but since in most cases the exact dates were given, there cannot possibly be any inaccuracy worth considering in our results from this cause. Out of the 102 lives, 49 died and 53 passed out of observation in other ways, so that there are scarcely enough facts to form even a rough mortality table in the usual way. In any event, however, it would have been impossible to do this, as none of the ages are given; but from the nature of the case we may take the ages at entry to lie between 20 and 40, as it is evident that a youth of less than 20 years of age would not be sent out as a missionary, and it is highly improbable that a man over 40 would proceed in that capacity to Africa for the first time. Probably, if we assume that the missionaries were aged about 30 at the commencement of their residence abroad, we shall not be very far from the truth; and it will be a convenient assumption to make for the purpose of comparing the mortality in Africa with that prevailing in Europe, and for the purpose of calculating what extra premium should be charged.

After filling up the incomplete dates, my next step was to calculate the time during which each life had been exposed to risk, or, in other words, the duration of the residence in Africa, and this was of course at once got from the dates of commencement and end of such residence. As, owing to the limited number of facts, it is out of the question to expect any minute accuracy in the final results, an approximate method of working is evidently all that is required, and in the case of the exits it will be sufficiently accurate to take the duration to the nearest integral number of years. But in the case of those who died the duration should be got by counting the year in which death takes place as if it were completed. Thus, if death occur in the nth year, the duration is taken to be n. This will result in our finally obtaining a function corresponding to the usual "probability of dying in a year," whereas if the duration had in all cases been taken to the nearest year, we should have got a result analogous to the "force of mortality," or rather to what is known as the "central death-rate." After setting down all the durations calculated in this way, their sum will give the total number of years of life embraced in the observations, viz. 704; and dividing the number of deaths, 49, by this, the result will be the probability of dying in a year, irrespective, of course, of age. This we find to be ·07. That is to say, the annual mortality among these missionaries has been at the rate of no less than 7 per cent, or 70 per 1000. According to the

English Life Table No. 3, the annual mortality of the whole population of England is between 24 and 25 per 1000; but this does not give quite a fair comparison, for it includes lives of all ages from the very youngest, and we must remember that the missionaries are probably aged between 20 and 50, or 60 at the outside. To compare the two rates of mortality we must take them between the same ages in both cases; and doing this, we find that by the above table the annual mortality among the population of England aged between 20 and 50, is under 12 per 1000, or including lives up to 60 years of age, it is under 14 per 1000. We may therefore conclude that the mortality among Europeans in Sierra Leone is about five to six times as heavy as it is in this country. The case is even worse if we make the comparison with assured lives—for instance, if we use the table given in the Institute Text Book. According to that table the annual mortality between the ages 20 and 50 is under 10 per 1000, and between ages 20 and 60 it is under 12 per 1000. Thus, roughly speaking, we have an annual mortality of 7 per cent among the missionaries, compared with little more than 1 per cent among ordinary assured lives in this country, and this appears to indicate that an extra premium of nearly 6 per cent per annum should be charged to compensate for the risk incurred by residence in Sierra Leone. As, however, the missionaries were probably not quite such good lives on the average as those selected by the insurance offices by means of medical examination and strict inquiries as to habits and family history, possibly a somewhat smaller extra, say 5 per cent per annum, might be found sufficient. It must be borne in mind, however, that the figures are too few to give more than a rough approximation to the truth. The above method of finding the extra premium is perhaps not quite satisfactory, and I tried to calculate it in a more scientific manner by finding the expected deaths according to the H^M. table, subtracting these from the actual deaths, and dividing the remainder by the total number of years of life under observation. For this purpose it was necessary to have the ages, and I assumed that the missionaries were all aged 30 at the commencement of their stay in Africa. The extra came out just about 6 per cent as before, and even if the age at entry were taken to be 25 or 35, the result was very much the same. In fact, this method of calculating the extra seems to me, on consideration, to be practically the same as that first mentioned, though it has an appearance of being more accurate, and it is only to be expected that it should lead to the same conclusion. Of course the element of interest has been left out of account altogether, but I do not think it is of much practical consequence in questions of this nature, and if we make the usual assumption (which is probably not far from the truth) that the extra premiums received each

year are just sufficient to pay the extra claims of that year, it is evidently theoretically correct to leave interest out of account.

With a view to testing the effect of acclimatisation, I arranged the facts in a similar manner to that followed by Dr. Sprague in what he calls the "Nearest Duration" method of tabulation, described in the *Journal of the Institute of Actuaries*, vol. xxxi. p. 208; that is, the deaths and exits were arranged according to the duration of the risk, and set down in two columns. These were added together to form a third column, which, being summed continuously from the bottom upwards, gave the number exposed to risk for each year of residence in Africa. The same result could have been got in another way which is, perhaps, even simpler and more easily followed; thus the total number of lives was 102, and this is evidently the number exposed to risk for the first year, because none of them were exposed for less than six months. Twenty-two of these died in that year, and 10 passed out of observation at the end of it, being a total deduction of 32, and leaving 70 exposed to risk the second year. Similarly, five died in the second year, and eleven "exited" at the end of it, leaving 54 exposed to risk for the third year of residence in Africa; and so on. The mortality in each year is then got by dividing the deaths in that year by the number exposed to risk. (See Table I.) For the first year the mortality is 21·6 per cent; in the second, only about one-third of this, namely, 7·1 per cent; and in the third year, only about a quarter, namely, 5·6 per cent. As the facts are very few, I grouped together the deaths and exposed to risk in the fourth, fifth, and subsequent years, with the result that the mortality therein was only about one-fifth of that experienced in the first year, or 4 per cent. Thus we see that the mortality is excessively heavy at first, diminishing very considerably in the second year, while a further diminution is traceable in the third and fourth years. Although it may be said that these results are worth little or nothing because of the paucity of facts, I think they deserve attention, because, without any adjustment or attempt at graduation, they show that there is a well-marked and powerful selection exercised, gradually wearing off in about four years. It is very improbable that the results would show so regular a law by mere chance, and unless they are proved to be erroneous by future and more extensive observations, it seems advisable for offices to be chary about accepting risks on the west coast of Africa before the lives are acclimatised, and even then to charge a heavy extra premium. After, say, three years, the lives seem to be practically acclimatised, and as the annual mortality has fallen to 4 per cent, an extra of 3 per cent per annum appears ample. To verify this, I have calculated the extra on the assumptions already mentioned, but leaving the observations of the

st three years out of account, and this brought out the same sult, namely, 3 per cent per annum.

TABLE 1.

Year.	(1) Deaths.	(2) Exits.	(3) (1)+(2).	(4) Exposed to risk.	(5) Mortality (1)÷(4).
1	22	10	32	102	·216
2	5	11	16	70	·071
3	3	4	7	54	·056
4	1	1	2	47	·021
5	1	1	2	45	·022
6	...	3	3	43	(·044) for 6th and subsequent years grouped together.
7	1	3	4	40	
8	3	1	4	36	
9	1	3	4	32	
10	...	3	3	28	
11	1	1	2	25	
12	1	...	1	23	
13	...	2	3	22	
14	...	...	...	19	
15	2	2	2	19	
16	1	1	3	17	
17	1	...	1	14	
18	...	3	4	13	
19	2	...	...	9	
20	...	1	3	9	
21	...	1	1	6	
22	1	...	...	5	
23	...	1	2	5	
24	...	...	...	3	
25	...	...	...	3	
26	...	1	1	3	
27	...	...	...	2	
28	...	...	...	2	
29	1	...	1	2	
30	...	...	...	1	
31	...	...	...	1	
32	1	...	1	1	
33					
Total	49	53	102	704	Average mortality ·070

There are also a few figures given relating to 31 female missionaries, of whom 7 died; but in 14 cases the particulars are so incomplete that no use can be made of them. Leaving these out of account, there remain 17 lives exposed to risk for periods ranging from one to twenty years; and treating them in the manner already described, we get in all 129 years of life exposed to risk, and 7 deaths, which brings out a mortality of 5½ per cent This is rather less than the rate prevailing among the males, but

for this is that the powerful selection we have found to exist is probably due, not to any improvement in the health of the missionaries, or any personal acclimatisation, but rather to the fact that all those with weak points in their constitutions are rapidly killed off, leaving only the best lives surviving. If this is the case, we may take it that the excessive mortality in the first year would be got rid of if the very best lives were picked out beforehand, and only those sent out to Africa; and, therefore, if an office could select those lives by means of its medical examination or otherwise, it could afford to charge a much lower premium than that brought out by the statistics. This method would, I fear, be quite impracticable, and it would at all events leave the difficulty unsolved in the case of ordinary or average lives. Another way of meeting the case suggested itself to me, namely, to make it a condition of the policy that, if death occurred during the first year, the claim should not be paid but the premium returned. If this were done the first year's risk would be avoided, and a uniform extra premium of about $3\frac{1}{2}$ per cent would be sufficient for the future. There would still be a difficulty about the mortality in the second year, which is over 7 per cent, and would therefore require an extra of nearly double the amount just found, and it would be an improvement in the method to carry it a step further and stipulate that only half the sum assured should be payable on death in the second year. This plan would certainly not be popular, and would not suit all cases. For instance, a married missionary going out to Africa for the first time would probably wish to be insured from the outset instead of having to wait a year, though most people would probably think the point unimportant, as I imagine every insurer feels certain that *he* isn't going to die in a year whatever may happen to others. It would therefore be advantageous to modify the plan by making part of the sum assured (say one-quarter) payable for death in the first year, a larger part (say one-half) in the second year, three-quarters in the third year, and thereafter the full sum assured, as the selection due to acclimatisation would to a great extent have worn off by that time. If this were done, a uniform extra of slightly over 3 per cent per annum would be sufficient to cover the risk. Of course, any number of variations might be introduced on this system, but as the figures which form the basis of these notes are not suitable for getting anything more than the roughest of approximations, I have not thought it worth while to go any further.

There is one other point to be considered. As the statistics date back to the beginning of the century—the first of the missionaries having gone out to Africa in March 1804, and all but one or two having gone there more than a quarter of a century ago—the mortality shown by them may be different from that which is

left at the end of the first year, while all the foreigners continued under observation during the next. This is, of course, quite sufficient explanation of the peculiar effect on the average mortality. (See Table II.)

TABLE II.

Year.	British.			Foreigners.		
	Exposed to risk.	Died.	Mortality per cent.	Exposed to risk.	Died.	Mortality per cent.
1st.	65	14	21·5	37	8	21·6
2nd and subsequent.	286	12	4·2	316	15	4·7
Total	351	26	7·4	353	23	6·5

As to the practical application of these results, the following considerations occurred to me. The mortality in the first year appears to be so heavy that no office could charge a sufficient premium to recompense itself adequately for the risk incurred in that year; or rather, if it did charge such a premium, probably no insurer would be found willing to pay it, as the amount would have to be about 20 per cent of the sum assured. It is true that a uniform extra of 6 per cent per annum would, in the long-run, be sufficient if all the policies were kept up; but as this is never the case in practice, the office would lose heavily on all those policies which were allowed to lapse after a year or two. The office would have incurred to the full extent the extremely heavy risk of the first year; but part of the consideration for that risk, consisting of the extra premiums during the later years of life of those who survive, would never be received in respect of the dropped policies, and a loss would accordingly be the result. There would also be an inducement to allow a policy to lapse after the life had become acclimatised, as it might then be possible to insure afresh at a lower premium—in fact, as we have already seen, an extra 3 per cent would then be ample. These considerations seem to show conclusively that to charge a uniform annual extra is not a satisfactory way of dealing with this class of risks.

There is one way by which, if it be found practicable, the necessity of paying an excessively heavy premium might be avoided; namely, to select the very best lives by a specially searching medical examination and inquiry into family history, and to charge these a lower extra—say 3 per cent. The reason

at present experienced. It is quite likely that some of the deaths were due to acts of violence on the part of the natives, and the risk of this would naturally diminish as the country became more settled and civilised. Some are likely to have been caused by wild animals, for a considerable number of lives have been lost by lions, wild bulls, alligators, etc., attacking the unfortunate inhabitants of that part of the world; but as the towns increase in size, there is perhaps less likelihood of this occurring. Also, sanitary science has advanced with great strides in the last quarter of a century, and the laws of health are better understood now than at the time the missionaries went to Sierra Leone. Finally, it is well known that one of the most fertile causes of malaria and fever is the disturbance of virgin soil in tropical climates, the earth being full of germs of these diseases. This was clearly shown by an occurrence, reported, I believe, by Dr. Felkin, which happened to one of the great African explorers who had occasion to dig a trench in the jungle. About forty men set to work at this in the morning, and nearly half of them were down with malaria by midday, while by sundown there were few men left to work. A great number of those who were attacked succumbed to the disease, and were dead within twenty-four hours. But when the ground is put under cultivation these germs seem to disappear, or to be rendered much less virulent, and the country grows much healthier. All these reasons will tend to make the present rate of mortality less than that shown by the statistics in question, so that the extra premium brought out by them may be more than sufficient at the present day. This, however, is little more than conjecture; and, on the other hand, the figures do not show the full risk of the African climate, for from another source I learned that many persons die on the voyage home, after having left Africa and so passed out of observation, and others die within a short time after reaching this country, having been sent home invalids with their constitutions seriously damaged. If these persons had been included in the observations, the mortality would no doubt have been even heavier. In the absence of further data, it would appear that lives resident in Sierra Leone are scarcely likely to prove profitable risks at rates of extra premium less than about five per cent per annum, and that even with this extra a loss may be sustained in consequence of the very heavy mortality during the first few years, and the lapsing of policies after that time.

An Investigation

as to how far

Life Insurance is of a Provident Nature, as benefiting the Assured and his Family; and how far it is of a merely Financial Character, as benefiting his Creditors and Assignees

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An Investigation as to how far Life Assurance is of a Provident Nature, as benefiting the Assured and his Family; and how far it is of a merely Financial Character, as benefiting his Creditors and Assignees.

(*Read before the Actuarial Society of Edinburgh*, 1896.)

In the first portion of the President's address this Session, we were favoured with a short account of the origin of life assurance, which showed that, in the earliest days of insurance, a policy was a contract of indemnity to secure a certain sum in the event of the life assured dying within a specified time (usually a year) of the date of the assurance; that there was no right of renewal on the part of the assured; and that the object of the contract was originally to secure creditors against loss, the earliest life policies being effected in connection with marine insurance. The safety of a ship and its cargo depends largely on the skill of the captain, and would probably be endangered to a certain extent by his death, and it was therefore natural to provide against the risk of this by a contract to pay a certain sum in the event of his dying during the voyage in question, or within a specified time, say a year. In later times, when the right of renewal was granted to the assured, the contract appears to have radically altered in its object, and to have been entered into chiefly for the purpose of providing a fund for the maintenance, after the death of the life assured, of those who were dependent on him, and particularly to guard against their being left destitute by his premature death. In fact, at that time an assurance company was somewhat of the same nature as the "Friendly" or "Benefit" Societies of the present day.

We are, no doubt, all familiar with the chief arguments made use of nowadays by the advocates of insurance in order to obtain proposals, and foremost among these is the provision (which can be obtained in no other way) formed by a policy against the risk of the assured's family being left destitute, or in greatly straitened circumstances, by his premature death. On the other hand, we

are aware that in many cases a policy is effected merely to secure a monetary advance—for example, a charge on a life interest or on a contingent reversion, or as collateral security for a loan from a bank or other party; and, as a general rule, the exceptionally large policies for many thousands of pounds, which we occasionally get to swell the volume of our business, are effected in connection with large financial transactions. Hence, although we may consider that our business is mainly of a provident and thrift-encouraging nature, as providing for the maintenance of widows and orphans who are deprived of the support of their breadwinner, it is not clear that we are justified in assuming this without investigation as to its truth; and some authorities, I understand, have even taken the opposite view—namely, that the larger part of our transactions arise out of the embarrassments and financial difficulties of the persons whose lives are insured, rather than from any provident motives on their part. It may therefore be not without interest and advantage to consider how far each of these views is correct; and the following investigation is an attempt to ascertain the facts, so far at least as regards one of our Scotch offices.

Commencing with the proposal, we find that in the great majority of cases the object of the insurance is stated by the agent to be "provision for family," or words to a similar effect; but, as in many of these cases the policy is shortly afterwards assigned or mortgaged, this cannot be taken as a reliable guide. In fact, the agent in many instances probably does not know the real object of the insurance, and merely gives a stereotyped answer to the question, so that his statement carries little or no weight. Again, the number of dealings intimated to the office, as affecting its policies, might be compared with the number of policies in force; but the notices often do not show all the circumstances. For example, if an assignment be made to some person or persons as trustee or trustees of a settlement, the notice may merely state the names of the assignees without mentioning anything about the trusts on which the policy is to be held. This method would accordingly not throw much light on the subject, and it is only when a policy has become a claim that any really satisfactory information can be obtained. It is therefore clear that we cannot readily learn with any degree of accuracy the causes or motives which give rise to most of our business; but we can at all events ascertain the results, and discover what class of persons reap the ultimate benefit of the insurance by receiving the policy moneys at maturity. I accordingly confined my attention to policies which had become claims, and extracted the following particulars regarding over twelve hundred of these—namely, the amounts (including bonus) payable under each, distinguishing between claims arising from the death of the life assured and

those arising from his having survived to a specified age, and also between policies on male and female lives; the burden on each policy (if any) by way of loan from the office, or charge in security; the length of time that the insurance had been in force; the dealings which had been intimated to the office affecting each policy; and the person or persons to whom the claim was paid, or rather, who was entitled to receive and give a discharge for the policy moneys. In order to obtain this last information, I found it convenient to refer to the solicitor's report on the title to the policy when it became a claim, except in the cases where there had been no dealings with the policy, and the money was therefore paid to the assured, or his legal personal representatives, as a matter of course.

It may be mentioned here that the office acts on the principle of referring all legal questions, and sending all documents of title, to its solicitors to be reported upon. The solicitors were appointed by the directors to act as legal advisers to the office at a fixed annual fee, in accordance with an agreement entered into at the time of the appointment, and they are therefore, in effect, salaried officials, though their whole business is, of course, not confined to the office. It is believed that a regular firm of solicitors who give advice to the office as a part only of their business, is more in touch with, and better fitted to keep abreast of, all the modifications and alterations that are from time to time made in the law, than a clerk whose sole duties lie within an insurance office. And as many intricate legal questions may arise, especially in regard to settlement policies and stamp duties, it is deemed safer and more satisfactory to adopt this course than to retain a qualified law clerk on the staff.

The solicitor's report, of course, stated who was entitled to receive the policy moneys, and in what capacity the discharge was given—whether it was granted by an assignee, mortgagee, or by the trustee of some settlement, etc. In a few cases, where the policy moneys were divisible among, and the discharge signed by, several parties, it was not always possible to determine accurately the amounts receivable by each. For example, the discharge might have been granted by mortgagees of the policy with the concurrence of assured's executors, or by several successive encumbrancers, and the money paid to them as a body to be afterwards divided between them in the proper proportions. But by examining the correspondence regarding these claims, and the papers and documents connected therewith, I was able in many cases to ascertain the amounts of the various charges on the policy, and therefore how much was left to go to the assured's executors. Again, it sometimes happened that, owing to some slight defect in the title, or error in stamping some document dated prior to 1888, the

signature of some of the parties to the discharge had been obtained as a precaution merely, they no longer having any actual interest in the policy. For example, in one case (a claim by survivance) the assignee objected to hand over the deed which formed his title to receive the policy moneys, and in order to obviate the necessity of doing so he obtained the concurrence of the assured in the discharge, although the latter had no interest whatever in the policy. In another case, there was some doubt whether the assignment was properly stamped, and therefore, to ensure the discharge being sufficient, the signature of the assured's executors was obtained thereto, and an indemnity given. I may mention in passing, that if the deed had been dated subsequent to 16th May 1888, this would not have rendered the discharge satisfactory, as, if the stamp on the assignment had turned out to be insufficient, the insurance office might have been called upon to pay the amount of the unpaid stamp duty, with a penalty of £10; and the indemnity would not have been valid, so that the office could not have recovered anything under it. In the few cases where no information could be got as to the proportions in which the policy moneys were divided between the various parties to the discharge, I was forced to classify the claims in a somewhat arbitrary manner, and, after consideration, I decided to group them according to the capacity in which the principal signature to the discharge was given. Thus, claims where the discharge was signed by the executors of the assured, with the concurrence of some assignee, I placed among the claims paid to executors. Those where the concurrence merely was given by the executors, I placed among the claims paid to assignees; and, on the whole, I think that if any errors have been introduced by this, they will be of insignificant amount compared with the total sums dealt with; and further, that they will probably be in opposite directions, and therefore balance one another approximately, so that the results may be taken as sufficiently correct for all practical purposes.

Coming now to the question of the burden on the policy by way of loan, most of these loans had been granted by the office, and the particulars were set out in the discharge, the form of which showed the gross sum payable and the amount of loan and interest deducted therefrom. When the advance had been made by a bank or some other party, I frequently found the amount mentioned in the solicitor's report already referred to, and when this did not contain the information, I was, as a rule, able to obtain it from the documents connected with the claim.

All the remaining particulars were readily obtained from a book of memoranda regarding claims, which is kept by the office. It contains very full information regarding each claim, comprising not only the particulars of every policy which has become a claim,

and an account showing the sums payable under each, with the deductions therefrom (if any), but also an abstract of the entire correspondence connected with each claim; and by the help of this, the work was greatly facilitated.

Having completed the list of data, I found it necessary to omit a number for various reasons. In the first place, all reassurances must be excluded, as these cannot be regarded for our present purpose as an integral part of the business; but are merely arrangements between offices for dividing risks among them, which have no direct concern with the public. The few cases where no sum became payable under a policy, must also be omitted. These may arise where an insurance has been effected on the last survivor of two lives, and one life only has failed, the death being proved in the ordinary way and entered among the claims for future reference merely; or where the policy has become void by suicide of the assured within a specified number of years from its date. Pure endowments, where the sum assured is payable only on the life attaining a specified age, and where death has taken place before that age has been reached, would also have to be left out; but there happened to be none of these among the policies I dealt with. One peculiar case was that of a man who died abroad, intestate, having apparently deposited his policy as security for a debt exceeding the whole sum payable thereunder. So far as the office could ascertain, it appeared that the depositees of the policy had died many years ago and no trace of their representatives could be found; while the assured's affairs had been left in so embarrassed a condition that none of his relatives would take out a grant of administration to his estate. Hence no one came forward to claim the policy moneys, and the claim had to be omitted.

After all the above deductions had been made, there remained 1181 policies, insuring in all a sum of £838,857; but among these were a number of so-called "duplicate policies," that is, cases where there were two or more policies on the same life. It was my intention originally, after classifying the claims, to ascertain the amounts and the number of policies in each class, and thence to find the average amounts of the policies in the various classes, as that information might lead to interesting results; but on further consideration I deemed it more advisable to group such "duplicate policies" together when the titles were similar. It not infrequently happens that a person, effecting an insurance for a given amount, prefers to have it in the form of several policies instead of a single one for the amount. Again, he may increase or diminish the amount of his assurance at various times, according as his means or the number of persons dependent on him vary; and therefore, for our present purpose, the total sum

for which he is insured seems of more importance than the average amount of his policies. I have accordingly considered only the total sums paid to the different classes of claimants, whether these arise under one or more policies, and the number of separate claims made, so that the averages brought out hereafter represent the average amount of each claim, not of each policy.

The next step was to group these claims under various headings according to the manner in which the policies had been dealt with. Taking first those policies which were effected by males on their own lives, by far the largest class is that where the policies have never been assigned or dealt with in any way (except to obtain a loan from the office), so that the claims were paid to the representatives of the assured. Another large class is formed by policies which were assigned to third parties at some period, but were afterwards reassigned to the assured, and then remained in his possession until the claim became payable; and again, there are policies which were only assigned to trustees for the benefit of the wife or children of the assured, in connection with marriage contracts or other settlements. There are three cases of joint-life policies, and in each of these the claim was paid to the survivor, who was either the husband, widow, or sister of the deceased. All the above classes may be regarded as having served a provident purpose, since the money, being paid to the representatives of the assured or to trustees, or to members of his family, would, in general, be applied for the benefit of his family. But those policies which were assigned and passed out of the disposition of the assured, so that the claims were paid to assignees, must be considered as belonging to that class of business which has served a purely financial purpose, the benefit of the insurance being entirely lost so far as the family of the assured are concerned.

I classified the policies on female lives in a similar manner.

Considering next those policies which were effected by one person on the life of another, it is not so obvious how these should be classified. Some of them were effected by trustees under marriage contracts, or by the wife of the life assured, under one or other of the Married Women's Property Acts, and these all fall naturally into the class of family provisions. Those policies effected by a man on the life of his wife, I have included in the same class when the policy money was paid to him; and also those which were effected by a father on the life of one of his children. There is room for question as to how far such policies ought to be regarded in the light of family provisions, as, in general, a man would probably not insure his wife's life unless she had a life interest in, or a contingent reversion to, some property; and in any case he could not legally do so unless he had

a pecuniary interest of some kind in her life. When the policies were for small amounts, however, it was generally held sufficient to give an insurable interest, if the wife assisted her husband in his business—for example, by taking part charge of his shop if he were a small tradesman; and policies effected under these circumstances may perhaps rightly be regarded as belonging to the provident class of insurance. Further, it is probable that if the policy moneys were paid to the husband, they would ultimately be applied more or less directly for the benefit of his family, and that if the insurance had been entered into for the purpose of forming a collateral security for raising money, the dealings with the policy would show this, and that the money would have been paid to assignees. The point is, perhaps, not of much importance, as such policies were comparatively few in number.

When a policy had been assigned to the life assured and the claim paid to his representatives, I treated it as a provision for his family, although this may not always have been the original object of the insurance. The reason for so doing is that many of these policies were effected by corporations, public companies, or private firms on the lives of their employees in connection with various "Employees' Insurance Schemes," so that the insurances practically formed a part of the emoluments of the various situations. In such cases, when an employee leaves his situation, it appears to be the usual practice for the policy to be handed over or assigned to him by his employers, and thereafter he has of course to pay the premiums himself. These insurances, therefore, clearly belong to the "Provident" class, although they are not in the first instance taken out by the life assured.

When a person (other than a trustee) effected a policy on the life of another, and afterwards received the policy moneys, I assumed that the object of the insurance was to form a security for some advance, or was connected with some life interest or lease, rather than for purposes of family provision; and I have therefore treated such cases as belonging to the portion of our business which arises from purely financial considerations.

The results of the above classification are set out in Tables I. and II.—the former containing the cases where the insurance was of the nature of a family provision, and the latter the cases where the benefit went to third parties who had effected, or become entitled to, the policy purely as a matter of business. It will be seen that 705 claims, amounting together to £517,170, came under the former heading; and 339 claims, amounting to £321,687, under the latter. Thus it is clear that the greater part of the business, both as regards the number of policies and the sums assured thereby, is what may be described as of a provident nature, and a benefit to the widow and children of the

assured at his death. If we consider the number of claims we find that the proportion is 67½ per cent; but the proportion of the amounts paid is less, being only 62 per cent. That is to say, the claims arising from this class of business are individually of smaller amount (the average being £734) than the claims paid to assignees and other third parties, which average £949. From this it is seen that, as already hinted, the largest policies are effected in connection with financial transactions. In both classes the sums payable suffered deductions of rather more than 5 per cent on the average, owing to loans granted on security of the policies, such loans being for the most part granted by the insuring office; but a considerable number of these were granted for the purpose of enabling the assured to pay the premiums, or were sums advanced by the office under the modern non-forfeiture regulations with which most of us are familiar; and in these cases probably the greater part of the benefit would have been lost by the lapse of the policies, had the loans not been granted.

When the claim was paid to the representatives of the assured, I found that in very many cases (over two-fifths of the whole number) the wife of the assured had been appointed executrix, either sole, or jointly with others; and frequently the executors were children of the assured, which is what would naturally be expected. At the same time, I could not fail to notice the comparatively large number of cases, over 11 per cent of the whole, in which no will had been made, and letters of administration to the personal estate of the assured had to be taken out. It seems somewhat strange, that so large a proportion of the persons who are provident enough to insure their lives for the benefit of their families, should have neglected such an important duty as that of making a will; but they were probably of the class who are in a manner forced to insure by the persistent arguments of agents, and who would not, of their own accord, have exercised sufficient foresight and thrift to do so.

In order to study further the nature of the assurances under the headings already mentioned, I prepared Table III., which shows the average amount of the claims, the average duration of the assurances, the average loan thereon, and the percentage this is of the gross sum payable. The first and most noticeable fact is that, on the average, the largest insurances are those effected by men on their own lives in connection with marriage contracts or settlements of various kinds, the average amount of these being £1264; and that those insurances which were effected by trustees under such settlements, or in similar circumstances, are nearly as large, the average amount being £1200 according to the table. There are, however, included among this group a few insurances effected by men on the lives of their wives or children, and these,

being generally of small amounts, have had the effect of slightly diminishing the average claim of this class; but as there were very few such cases it was not worth while to put them in a separate group. We may therefore say that insurances effected in connection with settlements, and held by trustees, are, on the average, of larger amounts than those in any other class. This in fact is only what might have been anticipated, as such settlements are usually found only among the wealthier classes. It will also be observed that these insurances are least burdened by loans, the great majority of them being entirely free from any incumbrance of that nature; and the few loans there are, were almost without exception granted for the purpose of paying premiums to keep the insurance in force. Further, as these policies (being held by trustees) could of course not be sold or disposed of by the assured, and are bound to be applied to the purpose originally intended, they may perhaps be said to constitute the best and most satisfactory kind of provident insurance.

Next in order of magnitude come the claims on male lives, paid to assignees, the average amount of these being £1057; while those which were paid to the representatives of the assured are very much smaller, namely, £702. When the lives were females, the amounts are in all cases considerably less, but the same order of magnitude prevails—the settlement insurances being the largest with an average of £922; then come the claims paid to assignees, averaging £602; and lastly the claims paid to the executors and administrators of the assured, which were only £441 on the average.

The duration of the insurance does not appear to vary to any marked extent in the different classes. On the whole, however, the policies on female lives were of about a year's shorter duration than those on male lives. It would at first sight seem not unreasonable to suppose that the longer a policy was in force the more chance there would be of its having been dealt with, as in a long interval of time the assured would be more likely at some period to be in need of money, and might raise it on his policy. Further, a policy of long standing has of course a larger value than one more recently effected, and is therefore more readily available as security for a loan. From these considerations it would appear that there is a greater chance of a claim which arises from a policy of long standing being paid to assignees, than a claim under a policy which has been in force a comparatively short time. On the other hand, it is maintained by some authorities that lives which have been insured from financial considerations are not so good as those met with among provident business, and the figures appear to support this view, if anything, rather than the former; as the policies which were paid to assignees were, on the average,

of about half a year's shorter duration than those which were paid to the executors of the assured. The difference, however, is so small that it cannot be regarded as of any weight, and I have therefore not pursued the investigation of this point.

With very few exceptions, the claims which have already been considered arose through the death of the assured, so that the results obtained may be considered as applicable only to claims by death; and having regard to the great and increasing popularity of endowment assurances (under which the policy moneys are payable to the life assured if he survive a specified term), I have made a separate investigation as to claims by survivance. There were only sixteen of these among my original data, insuring in all a sum of £6766, of which £2100, or 31 per cent, was paid to assignees, and the remainder, or 69 per cent, to the assured themselves. This latter is rather larger than the corresponding proportion in the case of the claims by death (which we found was 62 per cent); but the difference might, if unsupported by further figures, be set down to the fact of there being so small a quantity of data to go upon. As the question is one of growing importance I sought for further information, and found, as I shall presently show, that the difference is not merely accidental, and should, in fact, be considerably larger. It was not practicable to obtain very extensive data, as this kind of insurance is of too recent introduction for the policies to have matured as yet in any considerable numbers; but I searched through the registers of claims for many years back, and extracted all the available figures. These consist of the particulars of seventy-two claims by survivance, excluding reassurances, and also excluding a few children's endowments, as these are of a different nature from ordinary endowment assurances, being policies (usually of small amounts) effected for the benefit of children, and paid to them only on their attaining a specified age, generally twenty-one years. From the nature of these policies it is scarcely possible that they should be dealt with in any way so as to be paid to assignees. I could not fail to be struck with the manner in which the number of claims by survivance is increasing. A few years ago, only two or three policies became payable each year by the life assured surviving the specified term, all the other claims arising by death; but the numbers are steadily increasing, and last year there were nearly thirty.

The seventy-two claims by survivance amounted in all to the sum of £26,140, which is sufficiently large to enable us to judge with some degree of accuracy as to the characteristics of this class of claim; and I have set down in Table IV. the results obtained on analysis of the particulars. It will be seen that over 75 per cent of the whole was paid to the assured (or, in a few cases, to trustees for the benefit of his wife or children), and less than 25 per cent

went to assignees. The 75 per cent just mentioned is a considerably larger proportion than that shown by the few figures I had at first; and, being of course still larger than the corresponding proportion in the case of claims by death, it seems to show that the difference between the two kinds of claim is not due to mere accidental variations in the figures, but that it is an essential feature. As the great majority of the claims by death arose under "whole-life" policies, we may say that endowment assurances, as a rule, are more beneficial to the estate of the assured than whole-life policies—at any rate, a much smaller proportion of the policy moneys is paid away to assignees; though it may, of course, be doubted whether a sum of money paid to a man during his lifetime is actually so beneficial in its effects as the same sum would be if paid to his family on his decease.

A point deserving particular notice is the average amount of the claims by survivance, which is only £363, and therefore very much less than any other class of claims we have dealt with, if we except a few special cases, such as the joint life-policies. From this it seems probable that this kind of assurance is popular among a different class of persons than whole-life assurance, namely, small tradesmen and others of similar position—broadly speaking, the lower middle classes—who wish to make a provision for their old age and cannot afford to insure for a large amount. Of course, it is only to be expected that these claims should be of somewhat smaller amount than those arising among whole-life policies, for the rate of premium is higher, so that for a given expenditure the assured would obtain a smaller endowment assurance than whole-life policy. At the same time, this circumstance alone would scarcely account for the difference between the amounts of the two classes of claim. It will be remembered that among the claims by death the smaller policies, generally speaking, were paid to the representatives of the assured and the larger ones to assignees, so that it seems a small policy is less likely to be assigned than a large one. This conclusion is borne out by the claims by survivance, their average amount being so much smaller than that of the claims by death, and a much smaller proportion of them being paid to assignees. It therefore seems clear that there is a direct connection between the amount of an assurance and the class of person to whom it is paid—that, in general, the provident assurances are for smaller amounts than financial business.

Another point to be noticed is the amount of loans deducted from the claims. Among those paid to assignees the proportion was about 6·8 per cent of the claims, a figure not far different from our previous results; but when we come to the claims paid to the assured, we find the proportion of the loans is nearly double this amount, being 12·2 per cent of the claims. This might be thought

due to the class of persons who effect such policies being in a small way of business, with not many other resources to fall back upon, so that they are more prone to borrow on security of their policies when in difficulties. But an examination of the figures seems to show that, on the whole, the loans were on the policies of largest amounts.

The duration of the policies becoming claims by survivance is naturally less than that of the other classes, being only 15·2 years as against 24·1; but the difference is increased unduly from the following cause. At the present time we are only beginning to feel the effects of policies maturing by survivance, as endowment assurances have risen to the important position they now occupy during comparatively recent years. The policies now maturing will therefore be, for the most part, those where the term of the assurance is short; but in a few years the assurances of longer terms will begin to mature, and we may then expect to find an increase in the age of the policies that become claims by survivance.

Summarising our results, we may say that the greater part of the sums paid away in claims under life policies goes to the representatives of the deceased, or trustees for the benefit of his family, and thus serves a provident purpose; but a large proportion, namely 38 per cent of the whole, is paid to assignees.

The insurances of largest amounts are those effected in connection with marriage settlements and other trusts, while insurances effected purely as financial transactions are also larger than the average.

More than half of the business consists of ordinary provident insurances where there are no trusts, and where the policies do not ultimately pass out of the disposition of the assured. These policies are for considerably smaller amounts than the average, and therefore are very numerous.

Insurances on female lives are, in all cases, for much smaller amounts than insurances of a similar nature on male lives; but otherwise there do not appear to be any marked differences in the characteristics of the two classes of claims.

Lastly, endowment assurance policies becoming claims by survivance are of much smaller amounts than whole-life policies, and a very much smaller proportion of them is paid away to assignees. This class of business therefore partakes more of a provident nature than the latter.

Of course, these results do not necessarily apply to offices other than the one from which my data were obtained, and it would therefore be of interest if similar figures could be obtained regarding other offices and compared with the foregoing.

TABLE I.

PROVIDENT INSURANCES, being particulars of claims paid to the representatives of the lives assured, or to trustees, so that the policy moneys were available for the use and benefit of assured's family

	No. of Claims.	Sums paid.	Loans.	Percentage of loans to sums paid.	Years in force.
Male lives—policies never assigned, .	493	330,717	19,936	6·0	11,344
,, ,, assigned and re-assigned, . .	100	85,652	4,582	5·3	2,874
,, ,, assigned only to trustees, . .	47	59,408	659	1·1	1,219
Female lives— ,, never assigned, .	33	13,635	287	2·1	857
,, ,, assigned and re-assigned, . .	5	3,136	1,844	58·8	98
,, ,, assigned only to trustees, . .	5	4,608	...	...	108
Life of another— ,, paid to representatives of lives assured, . .	4	981	109	11·1	67
,, ,, effected by trustees, etc., . .	15	17,995	...	...	488
Joint lives— ,, paid to survivor, .	3	1,038	...	...	47
Total, . .	705	517,170	27,417		17,102
Average, . .		733·5	38·9	5·3	24·3

TABLE II.

FINANCIAL INSURANCES, being particulars of claims paid to assignees, and holders of policies on the lives of others as a matter of business only, so that the policy moneys were of no benefit to the widow and children of the deceased.

	No. of Claims.	Sums paid.	Loans.	Percentage of loans to sums paid.	Years in force.
Insurances on male lives, . . .	249	263,096	13,943	5·3	6,126
,, female lives, . . .	34	20,466	1,268	6·2	726
,, life of another, paid to assignees, . . .	27	22,290	1,581	7·1	770
,, life of another, paid to effecters of policies or their representatives (except policies effected by trustees, etc.), .	29	15,835	1,195	7·5	412
Total, . .	339	321,687	17,987		8,034
Average, . .		948·9	53·0	5·6	23·7

TABLE III.

	No. of Claims.	Average sum paid.	Average duration.	Average loan.	Percentage of loans to sums paid.
Insurances on male lives paid to executors and administrators, .	593	702·1	24·0	41·3	5·9
Insurances on male lives assigned to trustees for wife, etc., . .	47	1264·0	25·9	14·0	1·1
Insurances on male lives paid to assignees, ...	249	1056·6	24·6	56·0	5·3
Insurances on female lives paid to executors and administrators, .	38	441·3	25·1	56·1	12·7
Insurances on female lives assigned to trustees, ...	5	921·6	21·6	...	...
Insurances on female lives paid to assignees, ...	34	601·9	21·4	37·3	6·2
Insurances on life of another paid to representatives of deceased, .	4	245·3	16·8	27·3	11·1
Insurances on life of another affected by husband, wife, father, or marriage contract trustees, . .	15	1199·7	32·5	...	...
Insurances on life of another paid to effecter of policy, . . .	29	546·0	14·2	41·2	7·5
Insurances on life of another paid to assignees, ...	27	825·5	28·5	58·5	7·1
Insurances on joint lives, . .	3	346·0	15·7	...	...
Average, .		803·5	24·1	43·5	5·4

TABLE IV.

Claims by Survivance.

	No. of Claims.	Sums paid.	Average sum paid.	Average loan.	Percentage of loans to sums paid.	Average duration.
Claims paid to assured or trustees for his family, .	50	19,716	394·3	48·3	12·2	16·5
Claims paid to assignees, .	22	6,424	292·0	19·7	6·8	12·1
	72	26,140	363·1	39·5	10·9	15·2

Note

upon

Select Life Tables

BY

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Note upon Select Life Tables

SOME time ago it was suggested to me that select life tables might form the subject upon which a few remarks might be acceptable to this Society; and the following include a brief review of what has been done in the past towards furnishing us with select tables, and a note of those at present available for office use. An apology is almost needed for bringing forward again such a well-worn subject, especially as it is neither presented in a new light, nor is anything added to the original contributions, that have appeared from time to time. But while there is little of what follows that is not already very familiar to the older members, these remarks may suggest to them a few points for discussion, and it may be useful to the younger members to have a few facts concerning these tables brought together. In various ways there seems to have recently been a revival of interest in the subject of select tables. In connection with the new experience, the preliminary stage of collecting from the contributing offices their mortality cards is, I believe, nearly complete; and the results we may expect from this material, when investigated, will probably place us in a new position with regard to the instruments we employ in office calculations. While from many causes there has probably been a decline in the death rate since the twenty offices' experience, most offices have within the last few years suffered from the heavy mortality amongst young and old due to influenza; and it is possible that premiums on a select basis, ascertained from the new experience, may be higher than those we have at present, especially for the older lives. Medical examination is, however, stricter than in former times; accumulated experience has taught us what are the most important points to be considered in assessing a risk; more attention is paid to a proposer's family history; and many lives, which would formerly have been accepted at the ordinary rate, are now declined or rated up. On the other hand, the keen competition among offices to show large returns of new business may now and then cause them to relax the severity of the standard, to which they usually require proposers to conform; for example, shortly before the close of the books, the anxiety to reach a certain amount of new business may cause an office to accept a case on better terms than it otherwise would. But some time must elapse before the final stages of the

new experience are reached; and the tables at present available will till then probably be the only ones employed. While there were formerly many who objected to what were considered needless refinements, most actuaries are now agreed that these tables are the only proper basis for premiums, and most offices, I believe, employ them in some way or other. Some have readjusted their tables of premiums throughout to conform to the more correct basis; others, while satisfied that their "with profits" table, with its margin to cover either mortality contingencies, expenses, or to supply profits, may remain on a mixed basis, have readjusted their without profits premiums; and some use select tables for short term or endowment assurances.

As all are aware, there are several sets of select tables which might be considered suitable for office use; but it may be well, in the first instance, just to glance at one or two earlier attempts to provide values of select annuities and premiums, although I do not propose to repeat the well-known theories on the influence of selection on mortality.

To make a review complete, we must go back to the year 1834; and in Mr. Arthur Morgan's *Introduction to the Equitable Experience*, published in that year, we find, apparently, the first mention of select life tables. After explaining how the tables from the Equitable Experience have been calculated irrespective of duration of assurance, Mr. Morgan says; "This method is liable to the objection that it does not accurately represent the mortality of lives selected at any one particular age. In a body of lives of the same age, all selected as healthy from the general mass of mankind, it is obvious that the rate of mortality must be considerably less for the first ten or twenty years after selection than amongst those from whom they are thus chosen. As, however, these selected lives advance in age, their general health and the rate of mortality amongst them will naturally approximate to the common standard. This approximation cannot be accurately estimated if the observations be taken from a blended mass of lives selected at age of 20, for instance, which have attained the age of 50, and of lives selected at the age of 50. The rate of mortality will for the former class be less, for the latter greater, than that which occurs in either class separately. The correct method therefore (if sufficient data existed) would unquestionably be to make distinct tables from the mortality of each distinct class. The numbers of each separate class in the tables now presented are insufficient for that purpose, and there is a variance observable in the rates of mortality at different ages when estimated in this manner which renders it scarcely possible to graduate a table from them." To illustrate this, Mr. Morgan gives a table showing, for certain ages, specimen rates of mortality

Morgan, 1834.

of all classes taken collectively, compared with that of separate classes. In a few cases, where the figures were sufficiently numerous to form some estimate from, the expectations of life were calculated, but Mr. Morgan did not attempt to obtain from the experience any other results which would show the effect of selection, or which might be of practical use in deducing the proper premium; and the figures he gives are only interesting as being the first obtained to throw light on the subject.

In 1844 Mr. Spens attempted to obtain from that part of the Seventeen Offices' Experience, contributed by the Equitable, a near approximation to the values of annuities on select lives. These values, at 4 per cent. interest, are given in his paper, "On the Minimum Rate of Annual Premiums and the Annual Values of Additions." Mr. Spens chose for the purpose he had in view the Equitable portion of the experience, as it appeared to "offer as favourable a view of life as could be anticipated in the experience of any office," and from the number of policies and length of time over which they extended, he thought the Equitable tables were more suitable than the Seventeen Offices'. The figures employed were contained in four tables called H_1, H_2, H_3, H_4, giving the probabilities of living a year at all the older ages, of the lives admitted at the four decennial groups 25-34, 35-44, 45-54, 55-64. Selection is partly allowed for, in that the lives admitted in any one group are kept separate from those in the other group; but the entrants at the higher ages in each group are mixed with those who have been insured some years, having entered at the younger ages in the same group; and it is clear that the annuities at the younger ages will be too high, and those at the older ages too low. So Mr. Spens took at one of the intermediate ages a value, which he considered should be correct—how exactly arrived at does not appear—and made the values at other ages harmonise as well as possible. The following figures, amongst others, are given to show how the annuities were obtained:—

Spens, 1844.

Age.	Extracts from Table H_1.		Annuity Values at 4 %.
	Admitted.	Exposed to Risk.	
25	643	642·5	17·75
26	615	1230·5	17·58
27	683	1823·5	17·37
28	732	2401	17·19
29	783	3002	17·01
30	762	3546	16·76
31	785	4077	16·55
32	780	4580	16·32
33	726	4976·5	16·08
34	750	5386	15·87
	7259		
35		5029	
40		3464·5	
45		2413·5	
50		1578	
60		513	
70		106	
80		2	

The annuity value at age 25 allows for selection in that the mortality among entrants *beyond* age 34 is not brought into account, but it is increased by the lighter mortality experienced by the entrants at the ages 26 to 34. Of the above annuities Mr. Spens concluded that the value at age 29 should be correct; and in a similar manner he arrived at annuity values for all ages from 20 to 60. The following are examples at quinquennial ages:—

Age.	4 % Annuities.
20	18·12
25	17·55
30	16·86
35	16·05
40	15·09
45	13·96
50	12·66
55	11·30
60	9·91

Higham, 1850.

Although Mr. Morgan gave six values of the select expectation of life, and Mr. Spens obtained in a somewhat arbitrary fashion the above approximations to the values of select annuities, to Mr. J. A. Higham apparently belongs the honour of having been the first to calculate "the values of annuities

on lives selected at particular ages and kept apart from others during their subsequent existence." In a paper read before the Institute on 25th March 1850, "On the Value of Selection amongst Assured Lives, and its effect upon the Adjustment of a Scale of Premiums as between Persons assuring at different Ages" (*J. I. A.* xx. 1), he took the Equitable figures published in 1834, and calculated expectations and 3 per cent. annuities for quinquennial ages; the values at each age being based on the experience of persons entered at that age and at ages one year younger and one year older. For example, for age 40 the entrants at ages 39, 40, and 41 were grouped. However large an experience may be dealt with, when the exposures and deaths are divided according to age at entry and age attained, it is invariably found that the figures are too small to give satisfactory results. The plan initiated by Mr. Higham for obviating this difficulty was to combine the entrants at several ages, and this was adopted with modifications by all subsequent investigators; in some instances it was found useful to group, not only the ages at entry, but also the years of duration. In the case of the former it has generally been found convenient to take quinquennial groups, and some prefer in all cases to adopt a uniform method of grouping; but where the figures are very small better results are obtained, and the law governing the progression of the figures is more clearly shown, by taking such groups as will give a regular progression. Of course, where, as in the case of the age at entry, it is convenient to get out results for fixed intervals, a uniform method of grouping has great advantages, and by combining three or five consecutive ages we get a middle age; this is not necessarily the average age, although, of course, it is more likely to be so where, as in the present case, only three ages are combined. It is obvious that, where the object of the investigation is to ascertain the proper select premium, and for this purpose it is only necessary to obtain the annuity at the date of insurance, the best course is to trace, as did Mr. Higham, the mortality for certain ages from entry to the end of life; but to obtain a set of tables available for a variety of office calculations, other means have been found more suitable.

Mr. Higham's annuities at 3 per cent. were as follows:—

Age.	Annuity.	Age.	Annuity.
20	20·88	45	15·69
25	20·09	50	13·82
30	19·18	55	12·34
35	18·17	60	10·89
40	17·13	65	8·89

The above are somewhat irregular, but were only intended to serve as a guide to the general table of mortality that should be used for premiums; and after comparison with the various tables then extant, Mr. Higham concluded that Davies's Equitable should be employed.

In 1851, in a paper, "On the value of Selection as exercised by the Policy-holder against the Company," Mr. Higham offered to the Institute a more extended set of tables of a similar character. He employed the Seventeen Offices' Experience, and, to prevent irregularities, took the entrants in quinquennial groups according to age at entry. Complete expectations and 3 per cent. annuities for quinquennial ages at entry, and ages attained, were calculated at first without any adjustment, in order that the adjusted values might be compared with the rough values to which they correspond; the adjustment being, as Mr. Higham says, extensive, and in some respects of an arbitrary character. The first part of Mr. Higham's labours was devoted to making an investigation to ascertain how long selection has an appreciable effect on the rate of mortality. For a full explanation of the manner in which this was carried out, reference must be made to his well-known paper; and it is sufficient in the present instance to mention that, having compared the probability of living for lives selected at certain ages with the probability for lives selected at all younger ages, he found that it is approximately correct to assume the period, during which selection exercises an effect, to be half the difference between the age at entry and age 80. While this somewhat arbitrary adjustment was in general agreement with the actual figures, it had, at the same time, the advantage of being easy of application. Mr. Higham's method of investigating the period of selection was afterwards criticised by Dr. Sprague, who showed that it was somewhat at fault. Mr. Higham then formed for lives among whom the effect of selection has been exhausted, a complete table giving probabilities of living a year, complete expectation of life, and annuities at 3 per cent. and $3\frac{1}{2}$ per cent.; and into this table merged, in accordance with the above rule, the values in what he called his Class Mortality Tables. These gave the values just mentioned for ages at entry 25, 30, 35 . . . 75, and for each year after entry, until the duration of assurance was half the difference between age 80 and the age at entry.

Higham, 1851.

Calendar years having been employed in the Seventeen Offices' Experience, some adjustment was of course necessary to ascertain the probability of surviving the year immediately after selection, or the first policy year. The average was taken of the probability of surviving to the end of the calendar year *of* entry and the first entire calendar year *after* entry, according to the Seventeen Offices',

the Equitable, and Amicable Experiences; the result being, of course, a probability much smaller than the true value. Mr. Higham's annuities at 3 per cent. for select lives are as follows:—

Age.	Annuity.	Age.	Annuity.
25	20·32	55	12·30
30	19·37	60	10·68
35	18·30	65	8·97
40	17·06	70	7·36
45	15·56	75	6·03
50	13·98		

and the following specimen form of his adjusted Class Mortality Tables may be of interest:—

LIVES ASSURED AT AGE 65.

Age.	Probability of living a year.	Complete Expectation.	3 % Annuity.	3½ % Annuity.	Age.	Probability of living a year.	Complete Expectation.	3 % Annuity.	3½ % Annuity.
65	·97118	11·83	8·97	8·65	70	·93863	9·04	7·02	6·81
66	·96339	11·17	8·51	8·22	71	·93244	8·60	6·70	6·50
67	·95720	11·58	8·10	7·83	72	·92625	8·19	6·40	6·22
68	·95101	10·03	7·71	7·46	73	·92007	7·80	6·12	5·95
69	·94482	9·52	7·35	7·12	Merged from hence in Mixed Table.				

The plan, initiated by Mr. Higham, for ascertaining an ultimate rate of mortality irrespective of duration, on to which the mortality for the different ages at entry joins after certain periods, is one which we shall see was subsequently adopted in two instances with considerable success, and is of great importance in reducing select life tables to a practicable size. While for some purposes it may be useful to have annuities for every age and every duration, tables of this sort are very unwieldy; and if we attempted to allow for selection in calculating other functions dependent on mortality, we should find it almost impossible to do so.

I have referred to Mr. Spens's approximations to select annuities obtained in 1844. In January 1862 this gentleman contributed to the Institute, "Observations on the Mortality Experience of the Scottish Amicable Experience from 1826-60" (*J. I. A.* x. 79). Here also Mr. Spens thinks it better to deal with his facts in a somewhat arbitrary fashion, in order to deduce a mortality table which, by careful reasoning and comparison of various data, may be taken as the correct one, rather than remain satisfied with the mortality exhibited by the experi-

Spens, 1862.

ence under examination, affected as it may be by peculiar circumstances. Mr. Spens had previously directed his attention entirely to the object of obtaining values of annuities at the time of selection, from which the proper whole-life premiums could be calculated; he now followed Mr. Higham's example in adopting an ultimate rate, and simplified his tables by assuming that selection ceases after six years. For the first six years of assurance, Mr. Spens took the average of the rates of mortality according to the Equitable, Seventeen Offices, Town Males, and the Scottish Amicable, and used these averages to assist him in fixing rates joining on smoothly after that period with the English Life No. 2; a comparison of actual and expected deaths having showed that the ultimate mortality was practically the same as the table mentioned. After careful consideration of various experiences, Mr. Spens took ·45 per cent. as the rate for the first year for all ages at entry from 22 to 42; and the rates for the following five years seem to have been fixed more or less arbitrarily, care being taken that a smooth junction with the English Life No. 2 was effected. Grouping quinquennially, the results were in the first instance obtained for the middle ages 22, 27, 32 . . . 57 at entry; a full table of q_x being obtained for all intermediate ages by interpolation. The following are examples of Mr. Spens's select annuities at 4 per cent., which he gave for all ages from 20 to 60 :—

Age.	Annuity.
20	18·16
25	17·53
30	16·79
35	15·96
40	15·03
45	13·92
50	12·64
55	11·28
60	9·89

Considering the way in which Mr. Spens's former annuities were deduced, it is surprising how closely the above values agreed with them. Although he provided the basis for a complete set of Select Life Tables, the employment of the English Life Table No. 2 for the ultimate rate, instead of an experience of assured lives, and the rather arbitrary manner in which his rates for recently insured lives were arrived at, were probably the reasons why his results were not carried a further stage; and they would be considered hardly trustworthy enough for office purposes to invite the calculation of monetary tables based upon them.

Fourteen years elapsed before any further tables appeared, but

in the interval Dr. Sprague read to the Institute his well-known paper, "On the Rate of Mortality prevailing among Assured Lives as influenced by the length of time for which they have been Assured" (*J. I. A.* xv. 328). It would seem that this searching analysis of the Institute experience was the preliminary result of Dr. Sprague's resolution to deal more scientifically with the data than the Committee had done. For practical considerations it was decided, at the time the Institute experience was made up, to have separate tables printed for lives insured for five years at least; but Dr. Sprague was apparently not satisfied with this, and hence his independent investigation of the mortality.

We have hitherto been chiefly concerned with various attempts to obtain annuities at the time of selection; but after the publication of such trustworthy and ample material as that collected by the Institute in 1869, the subject made greater strides. In April 1876, Mr. G. W. Berridge ascertained how selection affects policy values. For this purpose he obtained from the Institute experience annuities at 3 per cent. at the date of assurance, and average annuities for valuing policies in force 0-5, 5-10, 10-15, 15-20, and over 20 years. Combining the exposed and died as given in the Mortality Experience volume, the mortality from the date of entry to the end of life was brought into account; thus, the annuity on a life of the present age x, for valuing policies in force 0-5 years, was made to depend on the lives entered at ages x, $x-1$, $x-2$, $x-3$, $x-4$, and who, at the time of valuation, are about to enter their 1st, 2nd, 3rd, 4th, and 5th complete office years, the result giving on the average the value of an annuity on a life aged x for policies effected within five years. In calculating the value of this annuity, the values required for other durations were also arrived at, viz.:—

Berridge, 1876.

a_{x+20}	applicable to policies effected	more than 20 years.
a_{x+15}	do.	15-20 „
a_{x+10}	do.	10-15 „
a_{x+5}	do.	5-10 „

The annuity at the date of assurance was obtained by combining with the annuity for duration 0-5, a further $2\frac{1}{2}$ years' experience at the commencement; thus, from the annuities at ages 25, 30, 35, . . . were obtained the annuities at ages $22\frac{1}{2}$, $27\frac{1}{2}$, . . . on lives just select, the first payment being half a year hence, and the ordinary annuity by a well-known formula. A table for all ages from 25 upwards was completed by interpolation. If the policies of an office are classified according to the terms of duration just mentioned, a valuation which allows approximately for the true incidence of the mortality among assured lives can be made; the

reserves being in the aggregate approximately equal to those which would result from the employment of separate annuities for every age and every duration. This system of valuation seems open to the objection that it is too elaborate. The following are examples of Mr. Berridge's select annuities at 3 per cent. interest:—

Age.	Annuity at date of Assurance.
25	20·657
30	19·619
35	18·450
40	17·176
45	15·573
50	14·065
55	12·140
60	10·265

While Mr. Berridge was engaged in turning the Institute experience to such good account, Dr. Sprague and Mr. George King were engaged building up immense superstructures on the same data. Their valuable contributions to the *Journal* on the subject are so well known, that it will be unnecessary to go fully into their methods of procedure; but it may be useful to mention some of the tables we owe to them, and the principal points which distinguish these from other tables, allowing for selection. Mr. King's paper, "On the Mortality amongst Assured Lives," appeared in

King, 1876.

two parts. Part I., headed "Statistical," and read to the Institute on 24th April 1876, contained the l_x, d_x p_x, and e_x columns of his Analysed Mortality Tables. Allowing for grouping at certain points to prevent irregularities, and certain other adjustments, what was done was practically to keep separate the mortality for the ten quinquennial ages at entry 20, 25, 30, . . . 65, and trace the entrants at these ages up to the end of life; and on this basis complete tables of annuities at 3, $3\frac{1}{2}$, and 4 per cent. were calculated for these ages at entry and every age attained. To Mr. King is thus due the credit of having furnished us, at the expense of immense labour, with the most complete set of tables we have, allowing for selection throughout the duration of a policy. It was thought best to take the calendar years of the Institute experience, as they stand, and not to attempt to pass by any adjustment to policy years; consequently, Mr. King's annuity values are subject to the slight objection that the years of life do not exactly coincide with the years of assurance, but overlap to the extent of six months; that is, the annuity on a life aged $x+n$ is the annuity on a life now aged exactly $x+n$, on which a policy

was effected $n-\frac{1}{2}$ years ago at age $x+\frac{1}{2}$. By means of a model office, Mr. King furnished elaborate comparisons of the reserves by various tables with those required by his Analysed Tables, for offices of different ages, and at various rates of interest; and gave exhaustive examples showing how the comparative ratios could be used in practice. His annuities at date of assurance are:—

Age.	3 % Annuity.	4 % Annuity.
20	21·250	18·026
25	20·573	17·597
30	19·660	16·979
35	18·595	16·218
40	17·255	15·212
45	15·490	13·840
50	14·255	12·863
55	12·432	11·336
60	10·874	10·028

Sprague, 1876.

In December 1876, for the purpose of drawing some general conclusions as to the proper premiums for select lives, Dr. Sprague gave the values of select annuities at 3 per cent. and 4 per cent. for quinquennial ages. The Institute experience was employed; and the complete experience of the entrants in quinquennial groups was traced through, keeping them separate from entrants at all other ages. According to the manner in which the Institute experience was made up, the lives were originally taken half a year too young at entry; and allowance was made for this in the present operations by considering, for example, those who are placed opposite ages 63, 64, 65, 66, and 67 to be of the age of $65\frac{1}{2}$ at entry on the average. Also, to ascertain the mortality experienced in correct policy years, an adjustment was made on account of the first half-year of assurance having been formerly taken as a complete year. This was effected by halving the number of deaths to correspond with the figures in the Exposed to Risk column of the Mortality Experience; the exposures there having been already halved to obtain the rate for the Institute 'year 0.' For the purpose Dr. Sprague had in view, it was sufficient to obtain probabilities of living for $\frac{1}{2}$, $1\frac{1}{2}$, $2\frac{1}{2}$ ... years after entry; and having calculated these, annuities for ages $20\frac{1}{2}$, $25\frac{1}{2}$, $30\frac{1}{2}$, ... $65\frac{1}{2}$ were obtained from them by an approximate formula of summation. An adjustment was made on account of the middle age of the quinquennial group not being the average age; and the following select annuities at ages 20, 25, 30, ... 65 were obtained approximately from those calculated at half a year older:—

Age.	3 % Annuity.	4 % Annuity.
20	21·668	18·320
25	20·632	17·645
30	19·676	16·982
35	18·549	16·176
40	17·125	15·100
45	15·430	13·792
50	14·114	12·739
55	12·266	11·202
60	10·330	9·549
65	9·152	8·539
70	7·234	6·827
75	6·186	5·891

These results may, I suppose, be regarded as a continuation of Dr. Sprague's investigation into the mortality among assured lives, referred to on page 401; and from the way in which the subject was treated, those two papers seem to be practically independent of the later operations by the same author. Although the final annuities, given above, are only approximate values, the premiums derived from them are, from the manner in which the data were treated, probably the most accurate select premiums that we have. Nothing was attempted towards furnishing other tables.

Dr. Sprague's well-known select life tables appeared in January 1881; his description of the process by which the probabilities of dying were calculated having been read before the Institute in November 1878. One novel expedient employed in the construction was that, in taking the entrants in quinquennial groups, the error involved by assuming the central age as the average age was obviated by raising to the same radix the numbers at each age of the group. For example, the entrants at $28\frac{1}{2}$, $29\frac{1}{2}$, $30\frac{1}{2}$, and $31\frac{1}{2}$ were raised to the same radix 100,000; and to these were added 50,000 at $27\frac{1}{2}$ and $32\frac{1}{2}$; the total 500,000 being taken of the average age 30. Another noticeable feature of the process of construction was the manner in which q_x for the first five *policy* years was deduced from the calendar years of the experience. The deaths in each of the latter were divided up into half-years, and redistributed in the policy years in conjunction with the first half-year, ascertained afresh from the experience. These probabilities were graduated by the graphic method, and made to join on smoothly with the $H^{M.(5)}$ mortality after five years, or, in some cases, after a less period. By means of this expedient a complete set of tables, capable of being employed with the greatest ease, and suitable for almost all the requirements of office use, was calculated. The assumption that selection wears off after five

Sprague, 1881.

years seems to have been adopted by Dr. Sprague, not as a further development of his two previous investigations, but as a practical way of bringing select tables to such a complete stage as he was thus enabled to do; and there was an advantage in choosing the $H^{M.(5)}$ for the ultimate rate, in that a standard table was employed, which was held in great estimation by the actuarial profession; there being a general opinion that it represents very faithfully the mortality among insured lives after the first benefit of selection has worn off. If the mortality were traced through from each age at entry to the end of life, it would be impossible to calculate the many values which, by the adoption of such an ultimate rate, one can tabulate; and if, as in Mr. Higham's investigation, a considerably longer period than five years is assumed to elapse before the select rates join on to the mixed, the additional labour involved in computing complete tables would be almost prohibitive.

In enlarging the scope of select tables, it was necessary to invent a notation to distinguish several new functions, which were tabulated; and I think that those who have been in the habit of using these tables will agree that the ease with which they can be worked is largely due to the graphic symbols adopted; the most important novel features of this sort being, perhaps, the square bracket enclosing the age at entry, and the different type in which the select $H^{M.(5)}$ values were printed. In the commutation column, N, the values are tabulated so that, divided by D, they give the annuity due, and to distinguish these values from N as tabulated in the ordinary way, a slight difference is made in the printing, a detail of great convenience in using the tables. In Part III. of his paper, Dr. Sprague dealt very thoroughly with the use to which his tables could be put. Among other things, he explained how his tables relating to damaged lives could be employed in calculating the value of options exercised by the assured; showing in what a variety of ways the effect of selection could thereby be traced and allowed for.

A useful set of tables was placed at the disposal of the profession, and printed in the *Journal*, comprising the values of

$q_{[x]}$ $q_{[x-1]+1}$ . . . . . q_x	
$l_{[x]}$ $l_{[x-1]+1}$ . . . . . l_x	and $(ul)_x$, etc.
$d_{[x]}$ $d_{[x-1]+1}$ . . . . . d_x	and $(ud)_x$, etc.
$D_{[x]}$ $D_{[x-1]+1}$ . . . . . D_x	at 4 per cent.
$N_{[x]}$ $N_{[x-1]+1}$ . . . . . N_x	do.
$M_{[x]}$	do.
$a_{[x]}$	do.

and single and annual net premiums at the same rate. To facilitate the calculation of annuities and assurances on two lives, there was added a table showing the age of the $H^{M.}$ life, which is of the

same value as a select life that was insured at a given age, and has been insured for a certain number of years.

All the tables necessary for calculating without-profit premiums on a 4 per cent. basis were furnished; but in response to a general demand for values at other rates, the Institute are printing a further and more extensive set of tables, and these, I understand, will soon be available. A good many years ago Dr. Sprague had calculated the above functions at $3\frac{1}{2}$ per cent., and, in addition, extended tables of a_x and A_x at $3\frac{1}{2}$ per cent. and 4 per cent., adapted for use in valuations, on the assumption that the new business is so distributed over each office year, that the average duration of the policies at the close of that year is three months.

$$a_{[x-\frac{1}{4}]+\frac{1}{4}},\ a_{[x-1\frac{1}{4}]+1\frac{1}{4}},\ \ldots\ldots\ a_x$$
$$A_{[x-\frac{1}{4}]+\frac{1}{4}},\ A_{[x-1\frac{1}{4}]+1\frac{1}{4}},\ \ldots\ldots\ A_x$$

and their logarithms.

For offices employing the compound reversionary bonus system, there were also the single and annual premiums at 4 per cent. loaded for a one per cent. bonus, and the single premiums similarly loaded and adapted for use in valuations allowing for the incidence of new business as above, viz.:—

$$A'_{[x-\frac{1}{4}]+\frac{1}{4}},\ A'_{[x-1\frac{1}{4}]+1\frac{1}{4}},\ \ldots\ A'_x$$

A few values at 3 per cent. have been calculated, viz.:—

$$D_{[x]},\ D_{[x-1]+1},\ \ldots\ldots\ldots\ D_x$$
$$N_{[x]},\ N_{[x-1]+1},\ \ldots\ldots\ldots\ N_x$$

and their logarithms; also

$$M_{[x]},\ M_{[x-1]+1},\ \ldots\ldots\ldots\ M_x$$
$$a_{[x]},\ a_{[x-1]+1},\ \ldots\ldots\ldots\ a_x$$
$$A_{[x]},\ A_{[x-1]+1},\ \ldots\ldots\ldots\ A_x$$

Also, at 4 per cent., temporary annuities for all ages and years of duration 1 to 52, and policy values.

Government Annuitants, 1883.

The latest analysed tables are those deduced from the experience of the Government Annuitants, published in 1883. The Unadjusted and Adjusted Rates of Mortality for the year in which life annuities are purchased, for each of the three subsequent years, and for four years and upwards from purchase, are given for male and female lives. The following values are also tabulated:—

$$p_{[x]},\ p_{[x-1]+1},\ \ldots\ldots\ldots\ p_x$$
$$\mathring{e}_{[x]},\ \mathring{e}_{[x-1]+1},\ \ldots\ldots\ldots\ \mathring{e}_x$$
$$a_{[x]},\ a_{[x-1]+1},\ \ldots\ldots\ldots\ a_x \text{ at 3 per cent.}$$

Annuities at date of purchase, and when four or more years have elapsed, are also given at $3\frac{1}{4}$, $3\frac{1}{2}$, 4, and 5 per cent., Dr. Sprague's notation being adopted throughout.

It may be well to reproduce at this point a table, given by Dr. Sprague in 1881, of the 4 per cent. net premiums according to the various investigations I have mentioned. I cannot give premiums at this rate according to Higham (1850) and Berridge, as their annuities were given at 3 per cent., and we have not the means of obtaining them at the former rate.

Age.	Spens, 1844.	Higham, 1851.	Spens, 1862.	King, 1876.	Sprague, 1876.	Sprague, 1881.
20	1·383	...	1·37	1·411	1·330	1·391
25	1·544	1·58	1·55	1·532	1·517	1·509
30	1·753	1·79	1·78	1·718	1·715	1·714
35	2·018	2·05	2·05	1·964	1·976	1·992
40	2·368	2·40	2·39	2·325	2·365	2·361
45	2·838	2·88	2·86	2·896	2·914	2·851
50	3·474	3·51	3·49	3·370	3·433	3·488
55	4·284	4·28	4·30	4·270	4·350	4·358
60	5·320	5·39	5·34	5·231	5·634	5·541

The consideration of published with-profits premiums in their relation to the division of surplus has lately occupied the attention of the Institute, having been dealt with in two papers; and in both select tables were taken as a standard. In July last, Mr. Lidstone investigated the premium and loading systems of division (*J. I. A.* xxxii. 73). Excluding the interest profit on reserves, and taking average with-profits premiums, he compared the cash allotment to policies effected at various ages according to the premium system, H^M loading, and select loading systems, and showed that the premium system gives too small a proportion of surplus to policies at the young ages and too large at the old, while in the case of the H^M loading plan the conditions are reversed. On a $3\frac{1}{2}$ per cent. basis, Mr. Lidstone's average premiums show a loading of the following percentages of the gross premium:—

Age.	Percentage.		Difference.
	H^M $3\frac{1}{2}$ %.	Select $3\frac{1}{2}$ %.	
20	31·8	24·6	7·2
25	30·1	26·4	3·7
30	27·8	26·0	1·8
35	25·8	25·0	·8
40	33·6	23·2	·4
45	21·4	21·7	·3
50	19·4	20·5	-1·1
55	17·0	18·7	-1·7
60	15·2	17·7	-2·5

Select tables were also taken as a standard by which to judge of the adequacy of office premiums to supply a certain bonus, in a paper recently read to the Institute by Mr. Andras. In this he deals with the with-profits premiums of the thirty-three offices adopting the uniform or compound reversionary bonus plan; and by comparison with the 4 per cent. select premiums loaded to provide bonuses according to these systems, concludes:—(1) that too much bonus is given in many offices to persons assuring between 20 and 30, having regard to the premiums they pay, and too little to persons over 50; and (2) that the amounts by which the office premiums of some offices are in defect at the ages 20 to 30 bear too large a proportion to the cost of a 1 per cent. bonus to be neglected, if that is the minimum rate of bonus expected or assumed in the premium charged.

As regards without-profits premiums, suppose we take as a standard those suggested by Dr. Sprague (*J. I. A.* xxii. 396) based on the formula

$$1{\cdot}075\left\{\pi_{[x]}+\frac{{\cdot}01}{a_{[x]}}+{\cdot}00125\right\}$$

using $3\frac{1}{2}$ per cent. interest. While there are some offices still earning well over 4 per cent., in view of the heavy fall in the rate, many actuaries would, I suppose, be of opinion that more than $3\frac{1}{2}$ per cent. should not be assumed in any case; and that, where an office is now earning less than 4 per cent., it certainly cannot calculate its premiums on the latter basis. There are twenty-six offices realising less than 4 per cent. on their funds, the average rate for these being £3, 16s. 6d. per cent. The following table shows what rate of interest each of these offices is earning, and how much the annual without-profits premiums charged are in excess, or are less than, the select $3\frac{1}{2}$ per cent. standard.

TABLE showing the excess (+) or deficit (−) of the Without-Profits Premiums of 26 Offices earning less than 4 %, as compared with Select 3½ % Premiums calculated by formula $1{\cdot}075\left\{\varpi_{[x]}+\frac{{\cdot}01}{a_{[x]}}+{\cdot}00125\right\}$.

	Rate of Interest earned.	Age at Entry.											
		21		30		40		50		60			
		£ s. d.		£ s. d.		£ s. d.		£ s. d.		£ s. d.			
Select 3½ %		1 15 10		2 2 10		2 17 2		4 2 0		6 6 9			
(„ 4 %		1 14 0		2 0 9		2 14 10		3 19 3		6 3 10)			
	£ s. d.												
(1)	3 18 1	− 1 10		− 2 1		− 2 2		− 2 3		− 1 10			
(2)	3 16 1	− 1 9		− 1 6		− 1 2		− 1 3		− 1 6			
(3)	3 18 2	− 3 1		− 1 10		− 2 8		− 1 0		− 0 9			
(4)	3 18 11	− 2 10		− 0 10		− 1 5		− 4 3		− 2 3			
(5)	3 18 8	− 3 11		− 3 1		− 3 4		− 2 8		− 5 0			
(6)	3 19 5	− 1 0		− 1 1		− 1 0		− 1 2		− 1 3			
(7)	3 19 1	+ 0 2		− 0 1		− 0 2		− 0 3		+ 0 2			
(8)	3 15 10	− 1 4		+ 0 6		+ 0 7		+ 2 6		+ 3 7			
(9)	3 18 6	− 2 5		− 0 2		+ 1 8		+ 4 10		+ 11 1			
(10)	3 17 10	− 1 1		− 0 5		− 1 6		− 3 3		− 3 4			
(11)	3 15 5	− 1 5		− 0 4		− 0 5		+ 0 6		− − −			
(12)	3 17 10	− 2 2		− 1 6		− 2 0		− 1 7		− 0 1			
(13)	3 18 7	− 2 10		+ 0 3		− 0 2		− 1 0		+ 3 11			
(14)	3 19 0	− 1 7		− 1 5		− 1 9		− 0 10		− 0 11			
(15)	3 18 9	− 2 2		− 1 8		− 2 8		− 2 3		− 1 0			
(16)	3 16 9	+ 0 2		+ 1 4		− 0 7		− 2 9		− 1 9			
(17)	3 17 4	− 2 3		− 0 7		+ 0 1		+ 1 5		+ 4 6			
(18)	3 16 10	− 2 2		− 0 4		+ 0 2		+ 0 10		+ 1 11			
(19)	3 5 3	− 0 10		+ 1 9		+ 2 2		+ 0 9		+ 5 6			
(20)	3 4 2	− 1 0		+ 1 8		+ 2 1		+ 0 8		+ 5 5			
(21)	3 18 3	− 2 2		− 1 2		− 1 6		− 1 4		+ 0 3			
(22)	3 12 8	− 2 4		− 0 2		− 0 4		− 2 9		− 0 1			
(23)	3 18 3	− 3 7		− 1 6		− 1 3		− 0 3		+ 2 0			
(24)	3 15 1	− 1 4		+ 1 2		+ 1 4		− 0 6		+ 3 7			
(25)	3 15 11	− 4 10		− 3 6		− 3 4		− 3 0		− 5 9			
(26)	3 19 4	+ 0 2		+ 2 5		+ 2 11		+ 3 3		+ 8 1			

In consequence of the varied opinions as to loading, the above results cannot be considered to be of great weight; but it may be of interest to make the comparison. It will be observed that at age 21, all the offices, with three exceptions, charge less than the 3½ per cent. standard; at age 30, the rate charged is higher in seven offices; at ages 40 and 50, eight charge higher; and at age 60, twelve charge higher. The greatest deficiency at age 21 amounts to 4s. 10d., or 14 per cent. of the standard premium; and this occurs in the case of an office earning only £3, 15s. 11d. per cent. on its funds. The expenses of the office in question, I find, are very low, there being no commission paid; but the premium charged is only 4 per cent. above the net select premium. At the

same age the premiums of two offices, earning about 3¼ per cent., are 10d. and 1s. deficient; but in these cases the difference is compensated for at age 30. In several cases, the difference being in the same direction at all ages, and increasing, would seem to indicate that a select basis has been adopted, but with a higher rate of interest than 3½ per cent., and a different loading. In cases where a select basis has not been adopted, competition has probably caused the offices to reduce their premiums at the higher ages, but, in some of the above cases, the nature of the differences would seem to show that an H$^{M.}$ basis is still adhered to. Looking at the figures opposite Nos. 9, 13, 17, 18, 23 and 24, we find the deficiency at the younger, and the excess at the older, ages that we should expect from a mixed basis.

With the exception of the Scottish Amicable experience, all those I have referred to above were tabulated according to calendar years, involving the difficulty of obtaining in a satisfactory manner the probability of dying in the first insurance year. This problem was dealt with in different ways by the various operators. The question has been thoroughly discussed on various occasions; and it seems that by no method of adjustment can calendar years be made to coincide with policy years, nor the rate, deduced for the first year of insurance from calendar years, give a proper measure of the risk. To recapitulate briefly the methods of dealing with the problem: (1) Mr. Higham took the average of the rates for calendar years 0 and 1 after entry, according to various tables then existing, obviously overestimating the risk; (2) Mr. George King doubled the rate for the first six months, obtaining too small a probability; (3) Dr. Sprague ascertained what may be taken as the correct rate for the first six months after entry, and combined this with an approximate rate for the second six months. The latter was obtained by redistributing the deaths in the first, second, . . . calendar years after entry according to half-years. The approximate rates, arrived at by Mr. Spens in such an arbitrary manner from the policy years of the Scottish Amicable experience, cannot of course be taken as a criterion by which to judge of the correctness of the probabilities obtained from calendar years; but the unadjusted rates, calculated from that experience, may be taken as a guide, more especially as these were strongly confirmed by their close agreement with probabilities according to another experience tabulated in the same way. This was the Gotha experience, examined by Mr. Chatham in his prize essay, "On the Rate of Mortality and Discontinuance among recently selected Lives" (*J. I. A.*, xxix. 142). If we compare with these, or with the Scottish Amicable rates, the probabilities brought out from the calendar year experiences, we

find, as we should expect, that Mr. Higham's rates are too high, and Mr. King's too low, while Dr. Sprague's are higher at the younger ages and lower at the middle and older ages. Mr. Chatham referred to this difference between Dr. Sprague's rates and his own, and concluded that the former could hardly be considered satisfactory, but he did not examine into the cause of the difference. It may perhaps partly result from the employment of the formula, referred to above, to ascertain the deaths according to half-years. In this formula, the deaths within one, three . . . eleven half-years are brought into calculation; and it is possible that, by reason of the mortality increasing much more rapidly within the first than in subsequent years, the formula is not elastic enough, just as Woolhouse's formula of graduation is not applicable where selection has most effect. Also, if the lives entered at current age 30, and assumed to enter at 29½, should more correctly be taken as 29⅔ at entry, leaving four instead of six months during which the deaths of "year 0" occurred, this would necessitate two-thirds instead of one-half of the Institute "year 1" being combined to form the first policy year; and the resulting probability would be rather higher than that given. I have mentioned these refinements as interesting in connection with the widely different premiums charged by offices for one year assurances. The following table shows the highest, lowest, and average premiums charged; and, for the sake of comparison, I have also given Sprague's, Chatham's, and H$^{M.}$ net 3½ premiums, and the office premiums recommended by Dr. Sprague in his paper on Select Tables:—

Age.	Highest.	Lowest.	Average.	Sprague.		Chatham Net.	H$^{M.}$ Net.
				Net.	Office.		
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
20	1 0 6	0 14 6	0 18 4	0 9 7	0 16 6	..	0 12 3
30	1 4 8	0 16 6	1 0 0	0 8 8	0 16 6	0 7 6	0 14 11
40	1 10 2	0 18 2	1 5 4	0 10 7	0 18 2	0 12 11	0 19 11
50	2 3 11	1 4 4	1 14 11	0 15 8	1 4 8	0 18 7	1 10 10
60	4 2 6	1 19 8	3 0 9	1 7 10	2 0 9	1 18 8	2 17 4

It will be observed that there is very great divergence in the rates charged at the higher ages. At age 50, the highest is £2, 3s. 11d., the lowest £1, 4s. 4d., and the average £1, 14s. 11d.; while, at age 60, the highest is £4, 2s. 6d., the lowest £1, 19s. 8d., and the average £3, 0s. 9d. Competition must have caused a good many offices to bring down their premiums at these ages to an amount not greatly in excess of the select premiums; although, from the amount of the average premium at age 60, one would image that the H$^{M.}$ basis is still adopted in many cases. At ages

30 and 40, the office premiums recommended by Dr. Sprague are the same as the lowest charged; and at 50 and 60, they are only 4d. and 1s. 1d. respectively in excess of the lowest. If Mr. Chatham's net premium, £1, 18s. 8d. at age 60, is the most correct measure of the risk, the office premium of £2, 0s. 9d., recommended by Dr. Sprague, would hardly leave enough margin for expenses and profit.

Considering how long the subject of selection has been before British actuaries, and to what an advanced stage select tables have been carried, it is a little surprising to find that on the Continent the theory is quite in its infancy. All the tables employed there are apparently based upon mixed mortality; and selection seems to have received but little consideration by Continental actuaries. At least, this is to be gathered from a short paper on mortality curves, read to the Congress of Actuaries last year by M. Marie, in which he mentions selection as one, amongst others, of the elements affecting the mortality of assured lives. If the British actuaries at the Congress were not already aware of the position of matters on the Continent as regards selection, it must have been a little surprising to have had presented to them at this time of day the elementary facts, so well known here, to which M. Marie drew attention. After mentioning that the tables used at present take no account of selection, he stated that the probabilities of living or dying in a mixed table may show considerable divergence from those applying to recently assured lives, and gave a comparative table of the H$^{M.}$ and twenty-three German offices' rates for lives insured 0, 5, 10, 15 years, and all durations. Attention was drawn to the increase according to duration; but M. Marie thought that in an old company the employment in a valuation of mixed tables is admissible, as there should be a balance of errors, although in calculating tables of premiums it is important to take selection into account, because, "in consequence of the table, based on mixed mortality favouring lives at certain ages, as compared with others, there will be an influx of the first, and the latter will abstain, with the result of a deficit not allowed for in the calculations." The case of annuities was mentioned also, where the values from the mixed tables are, for old people, very much less than the select values, and the companies have found it necessary to make an empirical loading, increasing with age, after a certain period of life; and M. Marie thought that we should not be long in introducing into the calculation of tables data taking account of selection, but that the construction of such tables requires great skill. One difficulty, he mentioned, is that, when the observations are divided up, there is a strong probability of there being an insufficiency of facts at many points, and of the unadjusted figures exhibiting many irregularities, requiring very

delicate adjustment; but that a skilful operator could obtain a suitable adjustment, keeping in mind the double continuity required for the increase in age and duration. In a speech by Mr. George King, the Congress was made acquainted with the attention that had been given, and the publications that had been made, in Great Britain by Dr. Sprague and others upon the subject.

The Evolution of Premium Rates

A Chapter in the History of Life Insurance

BEING

THE INAUGURAL ADDRESS FOR THE SESSION 1895-96

BY

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HONORARY PRESIDENT OF THE SOCIETY

The Evolution of Premium Rates

A Chapter in the History of Life Insurance

GENTLEMEN,—For the honour which you have done me by electing me Honorary President of our Society for the new Session which we inaugurate to-night, I return you my most sincere and cordial thanks. All the more do I appreciate the compliment in that, during the greater portion of my business life, I have been more or less intimately connected with the Society, and have learned much from the many important papers which have been read at its meetings, and from the discussions which have taken place upon them.

It has occurred to me that a fitting subject for this evening would be an historical sketch of the rates of premiums charged for Life Assurances, and a consideration of the grounds upon which such premiums have from time to time been adjusted, together with an examination of tendencies at work which may yet lead to further modifications in our methods or our results.

Life Assurance appears to have been practised to a limited extent in the seventeenth century, and earlier part of the eighteenth, as a simple branch of underwriting. Those whose business it was to insure ships against loss at sea, came in due course to be asked to insure also masters of vessels—not against death, but against the risk of their being taken by the Moorish or Turkish pirates, etc., in order that, in such an event, a fund might be available to pay their ransom. From this the underwriters seem to have drifted into insuring both mariners and other individuals against death within a limited period not exceeding one year—such insurances being not so much, if at all, prudential arrangements on the part of those whose lives were insured, as contracts for the purpose of indemnifying creditors who might otherwise lose the sum due to them if the debtor whom they insured should be cut off within the year. For this risk of a single year's insurance a minimum rate of £5 per £100, independently of the age of the life, appears to have been charged.

Charles Babbage, F.R.S., in his *Comparative View of the Various Institutions for the Assurance of Lives*, published in 1826, states (p. xxxi) that this rate of five per cent. "was probably

fixed upon from its appearing that the annual number of deaths in London was nearly one in twenty of the population." I am disposed, however, to consider that this view is incorrect—*Firstly*, because the persons who made the rate were not students of such statistics in life contingencies as then existed (which, as we shall see, would have enabled them to fix much more accurate rates), but practical business men who applied to the problem the same rule-of-thumb considerations they were accustomed to adopt in fixing premiums in other classes of underwriting; and, *Secondly*, because I am unable to find any confirmation of the statement that the rate of mortality in London was one in twenty, that is, fifty per thousand.

The earliest book dealing with this subject is the quaint and interesting work entitled *Natural and Political Observations mentioned in a following Index and made upon the Bills of Mortality*, by Captain John Graunt, A.D. 1661; the complete title as developed in the said Index occupying no less than twelve pages—a failure in the typographer's skill rather than in the author's zeal having, we may assume, been the cause of the relegation of a portion of the complete title to a comparatively subordinate position. The reputation of Graunt's treatise in its own day may be judged from the fact that His Most Gracious Majesty King Charles II. ordered the Royal Society in recognition thereof to admit him as a Fellow, adding, in the courtly language of a Stuart, "that if they found any more such tradesmen, they should admit them all." Of this painstaking and original work I shall have occasion to speak later on; but, confining myself to the immediate question before us, I would point out that Graunt (p. 141, 4th Edition) found "that little more than one of fifty dies, in the country, whereas in London it seems manifest that about one in thirty-two dies, over and above what dies, of the Plague." As regards the plague, the estimate of Graunt's friend, Sir William Petty, in his *Essay concerning the Multiplication of Mankind* (2nd Edition, 1686, page 44), is as follows:—

> "It is to be remembered, that one time with another, a plague happeneth in London once in twenty years, or thereabouts; for in the last hundred years, between the years 1582 and 1682 there have been five great plagues viz.: Anno 1592, 1603, 1625, 1636, 1665. And it is also to be remembered, that the plagues of London do commonly kill *one-fifth part* of the Inhabitants."

Allowing for the plague, then, in terms of the estimate, we increase the death-rate to one in twenty-five, or forty per thousand only.

At a later period Thomas Simpson—whose name is specially associated with investigations into the rate of mortality in London in consequence of the tables which he deduced from the London Bills of Mortality for ten years, and published in 1742 in his

Doctrine of Annuities and Reversions—states, as regards the London death-rate (page 127 of the said work):—

"And (from a method too tedious to be inserted here) I make it as one to twenty-six very near. I know indeed that a certain author, considerable in these kind of disquisitions, gives the proportion very different from that above, viz. as one to thirty-five; but this, I apprehend could only be owing to a want of observations."

If I might hazard a personal guess I would say that the death-rate in London in Simpson's time (excluding plague years) was probably something like thirty-five per thousand of the population, being about the rate of an average insanitary continental city in the present day—*i.e.* about one in twenty-nine. Simpson probably overstates it in saying one in tweny-six; but the point for our present purpose is that nowhere can I find it stated by any writer preceding Babbage, so high as one in twenty. Various writers subsequently have given the same ratio as Babbage, but I take it that the error probably originated with him.

Not until the foundation of the *Society for Equitable Assurances on Lives and Survivorships* in 1762, which introduced a table of annual premiums graduated according to the age at entry, can we say that the science of life contingencies and the practice of life insurance were introduced to each other. And yet long prior to that time the science had much to tell to the "life underwriters" if only they would have listened to its teaching. Graunt's work has been already mentioned, and it need only further be noted at this stage that it contains a table of mortality, which—imperfect and largely hypothetical as it is—is nevertheless interesting as the first table of mortality founded to some extent on actual observations.

Following him came the Astronomer-Royal, Halley, who in 1692 submitted to the Royal Society his celebrated paper entitled "An Estimate of the Degrees of the Mortality of Mankind, drawn from curious Tables of the Births and Funerals at the City of Breslaw; with an Attempt to ascertain the price of Annuities upon Lives." Halley chose the city of Breslau because he found the ages of the dying accurately recorded there, whereas up to a much later date (1728) the London Bills of Mortality gave no further information as to the ages of the deceased beyond distinguishing "infants" from "aged." A great practical result of Halley's paper was to show that the British Government of that day, in selling annuities, as it did, at seven years' purchase irrespective of the ages of the annuitants, was doing a ruinous business; for his table of annuities calculated at what he indicates as the then current rate of six per cent. interest brought out the value of annuities at the younger ages at about double the price charged. Halley also dealt with the subject of life assurance as follows:—

"By what has been said, the Price of Insurance upon Lives ought to be regulated, and the difference is discovered between the Price of insuring the Life of a Man of twenty and fifty. For Example; It being one hundred to one, that a Man of twenty dies not in a Year, and but thirty-eight to one, for a Man of fifty Years of Age."

This pregnant sentence bore no fruit until seventy years later. But it must not be assumed that there was no practical progress between 1692 when Halley showed how graduated rates could be calculated, and 1762 when the Equitable Society introduced them.

Modern life insurance is distinguished from that which preceded it not only by graduation of premium rates, but by an even more important feature which also, roughly speaking, differentiates it from all other forms of insurance even down to the present day. I refer to the *right of renewal* being vested in the insured without the insurer having the option of terminating the contract at the end of the year, however much greater than the average the risk may in the meantime have become. This latter essential feature was introduced more than half a century before the Equitable commenced operations, and the credit of it belongs to the Amicable Society.

Founded in 1705 under the title of the "Amicable Society for a perpetual Assurance Office," its fundamental principles were so destitute of anything like a scientific basis that I was at first disposed to conclude that it had really no place in the development of life insurance. Down to the present century, and for a generation after the Equitable had introduced graduated premiums, it charged a uniform rate of contribution to all entrants, and, moreover, for many years after its formation, did not even guarantee any fixed minimum benefit in return for a fixed contribution, which the underwriters did. Its constitution was briefly as follows:—All entrants approved by the Directors paid an uniform annual premium of £6, 4s. per cent., besides certain entrance fees. After three years, when the membership had reached the full limit of 2000, the sum of £10,000 (being £5 out of each premium) was divided annually among the representatives of those who died in the year. The scheme was thus a sort of inverse tontine: an ordinary tontine would have divided a fixed annual income among the members surviving until the last surviving member got the whole, while the Amicable plan divided a fixed annual income among the representatives of the members who died in each year, so that the claim per member was large or small according as the mortality of the year was light or heavy. The Amicable may thus be said to have been founded on principles of mutual benevolence and not on scientific principles; but when fairly viewed, the right of continuance until a claim should finally arise which it conceded to its members (subject only to payment of

the annual premium) is far and away the most important feature ever introduced into the practice of life insurance. It raised life insurance from a mere temporary contract of indemnity, useful to creditors and others similarly situated, to its modern position as one of the greatest aids to thrift, and one of the most important, if not the only, means by which persons with moderate incomes and without capital can adequately discharge their responsibilities to those dependent upon them. Various modifications were from time to time made in the constitution of the Amicable Society, such as the application of funds accumulated from surplus premiums to guarantee minimum benefits, but the only one of importance in our present narrative, and only, so to speak, accidentally important, was the restriction of the ages of entrants to ages from twelve to forty-five, to which I shall shortly have occasion to refer.

Before passing altogether from the question of the right of renewal, I may point out that the words I have quoted from Halley plainly show that the only form of insurance in his mind was an insurance for one year. True, his table of annuities affords us ready means of determining whole-life rates; and, that we may compare them with others, I have calculated such rates corresponding to the annuities, and given them in Column 2 of Table A (see p. 402); and true it is also that the relation between an annual premium and an annuity is so simple and obvious that any man of figures could approximate to the former from the latter; but it is just for these reasons that we must look in another direction for an explanation of the fact that those who framed tables of annuities prior to the days of the Equitable, seem never to have deduced tables of annual premiums therefrom. The explanation is simple:—life insurance was no doubt a want in those days as in the present; but it was not, in the language of the company promoter, a "felt want." The valuation of annuities and reversions (apart from policies) was, on the other hand, a pressing necessity.

I cannot illustrate this better than by quoting from Francis Baily's well-known work, published in 1813, on *The Doctrine of Life Annuities and Assurances* (preface, p. v); and although policies of insurance are dealt with in this treatise, it will be observed that the following extract refers exclusively to life annuities and reversions to estates burdened therewith, and not to policies at all:—

"The importance of the subject, at the present day, cannot be doubted; since the greater part of the property of this kingdom is, in one shape or another, connected with this science. The present possessors of entailed estates are, in the common law, justly called tenants for Life; and the same appellation may be given to those who hold by curtesy or by dower; marriage settlements also, and wills, generally determine the possession and reversion of estates to particular lives: and to these contingencies every freehold estate in the kingdom is liable. If to these we add the immense

number of copyhold estates determinable on lives, and the estates possessed by ecclesiastical persons of every description (all of which will probably be ever subject to the same tenure), we shall find that the value of the greater part of the *real* estates in this country will be determinable upon the principles laid down in the present work.

"The incomes, likewise, annexed to all places, civil and military; all pensions, and most charitable donations;—these, and others of a like kind, are annuities for life. Moreover, the dividends arising from a great part of the capital in the Public Funds are, by the wills of the donors, and from other causes, rendered of the same nature. Besides which, many life annuities have been granted by Individuals, by Parishes, by Corporate Bodies, and by the Government itself. So that a great part of the *personal* estate, also, of this country is involved in a consideration of this subject."

This quotation from Baily shows very well the need which constantly existed in this, and indeed in every civilised, country for making some approximation to the value of life annuities and of reversions. How rude most of these earlier approximations were is illustrated by the quotation already given from Halley, showing that even the Government of his day were allowing 14 per cent. for sums sunk in life annuities irrespective of the ages of the lives.

Halley's table of annuities was the first annuity table derived from actual observations; but so far back as the third century of the Christian era the exigencies of the Roman Law rendered it necessary to prepare what is virtually a table of life annuities. "By the Falcidian Law, passed under Augustus, testators were prohibited from leaving legacies to such an amount as would reduce the residue of the person called, in the Roman Law, 'Heir,' lower than one-fourth of the whole estate."[1] Accordingly, when a life annuity was bequeathed to any other person than the heir, it became necessary to find the capital value of such annuity and to bring it into the reckoning in order to determine whether the limit above referred to had been exceeded. To meet this requirement the Prætorian Præfect Ulpianus promulgated the following table of annuities; which may, however, have been annuities at the rate of interest, zero—in other words, "expectations of life"—as no information on that point appears to be extant.

Age.	Years' Purchase.	Age.	Years' Purchase.
Birth to 20	30	44 to 45	15
20 „ 25	28	45 „ 46	14
25 „ 30	25	46 „ 47	13
30 „ 35	22	47 „ 48	12
35 „ 40	20	48 „ 49	11
40 „ 41	19	49 „ 50	10
41 „ 42	18	50 „ 55	9
42 „ 43	17	55 „ 60	7
43 „ 44	16	60 and upwards	5

[1] *A Treatise on Life Assurance*, by George Farren, published in 1823 (page 45).

We may take it, however, that this table had practically no place in the gradual development of our modern actuarial knowledge, for the very good reason that the older writers in this country do not seem to have been aware of its existence.

The first writer of note, following Halley, was Abraham De Moivre, who in 1725 published his celebrated Hypothetical Table of Mortality according to which out of eighty-six persons born one dies in each year until all are extinct. De Moivre admitted from the first that his hypothesis was inconsistent with observations so far as the first twelve years of life were concerned, but he was satisfied with its correspondence otherwise with Halley's table —"the best, perhaps, as well as the first of its kind." The hypothesis for a long time enjoyed very considerable popularity, aided no doubt by the facility with which calculations could be made from it as compared with the labour of forming complete and accurate tables from observations by the ordinary process. Thus Dr. Richard Price in the earlier editions of his *Observations on Reversionary Payments* says:—

"This hypothesis eases very much the labour of calculating the values of lives; and it is so conformable to Dr. Halley's table of observations, that there is little or no reason for distinguishing between the values of lives as deduced from this Table, and the same values deduced from the hypothesis. . . . I have also given two other tables which I have formed from the bills of mortality at Northampton and Norwich. These last tables answer more nearly to Mr. De Moivre's hypothesis than even Dr. Halley's table."—(Second Edition, pp. 2, 3.)

Subsequently, however, and on fuller consideration, Dr. Price saw reason to change his mind and to doubt the accuracy of his earlier statements; and in a postscript to his fourth edition in 1783, he to a large extent withdraws his previous recommendation.

In the same year (1783) Francis Maseres, Cursitor-Baron of His Majesty's Court of Exchequer, published a ponderous quarto volume, *The Principles of the Doctrine of Life-Annuities*, in which, after devoting a large amount of attention to theoretical investigations on the basis of De Moivre's hypothesis, he finally ends by condemning its use in practice. My point, however, is that during a large proportion of the period between 1725 and 1783 the hypothesis did enjoy a great reputation, and might consequently have been adopted as a basis for determining the premiums to be charged for life assurance. A study of Column 3 of Table A will show that if any office had chosen to charge premiums deduced from De Moivre's hypothesis with 3 per cent. interest, it would on the whole have secured very adequate rates.

It is a matter of historical interest to find that more than one hundred pages of Maseres' treatise are taken up with an elaborate

and carefully thought-out Bill entitled "An Act for the better Support of Poor Persons in certain circumstances, by enabling Parishes to grant them Annuities for Life, upon Purchase, and under certain Restrictions"—in other words, a Bill for Old Age Pensions. This Bill actually passed the House of Commons by a majority of two to one in 1773, but the House of Lords threw it out on the ground that the financial arrangements therein might ultimately prove injurious to the landed interest. The conception of the measure was undoubtedly due to Maseres, who had previously written a pamphlet developing the main features of the scheme, and who, while it was in dependence in the House of Commons, wrote a further pamphlet in its defence. The adoption of the scheme was hedged round by numerous safeguards, and it was not compulsory in character. Parishes were empowered to grant deferred annuities in terms of tables scheduled to the Bill, the purchase money received therefor to be invested in government stock, and the sufficiency of the contributions to be guaranteed by a collateral charge upon the poor law assessment of each district respectively. Confident in the scientific principles upon which the contributions were fixed, the promoters of the Bill anticipated that any falling back upon the poor rates would be a matter of rare occurrence; but a study of the tables in the light of our fuller knowledge of vital statistics shows clearly that a poor law assessment to supply the deficiency in the parochial annuity fund would have been the rule and not the exception. Two complete sets of tables were given, one for use in London and the other in country parishes: it being held that the value of life in London was much less than in the country. Dr. Price, who furnished an introduction, explains that the London rates are based upon Thomas Simpson's observations, and the country one on the Northampton Table, each at 3 per cent. The fact that either of those tables is found to furnish a very profitable basis for life assurance premiums is itself sufficient to prove that the reverse would be the case for life annuities; besides, we can point to the actual experience of the Imperial Government, which subsequently realised huge losses in selling annuities by the Northampton Table, the less unfavourable of the two. As the scheme, apart from the tables, may interest many to whom Maseres' work is not very accessible, I give in an Appendix an abridgment of Maseres' own account of the Bill.

Sixteen years later another attempt to deal with the same problem was made, and a Bill to enable the labouring poor to provide support for themselves in sickness and old age by small weekly savings from their wages passed the House of Commons in 1789, only, like its predecessor, to be rejected by the House of Lords. The actuarial portions of this measure

were contributed by Dr. Price at the request of a committee of the House of Commons, and will be found in an appendix to the seventh edition of his *Observations on Reversionary Payments.*

But these remarks are a digression. Premiums based upon Thomas Simpson's Annuities derived from the London Bills of Mortality, already referred to, are given in the fourth column of Table A; and it is but fair to an older author, John Smart, to say that Simpson's table was really Smart's. Simpson, it will be found, adopted Smart's statistics, and in order to provide for immigration, merely altered his figures under age twenty-five by increasing the number of the living in a somewhat arbitrary manner, partly assisted by an examination of Halley's Breslau figures. This adjustment reminds us of Dr. Price's treatment of the Northampton observations; and no doubt Price got the idea from Simpson.

A subsequent writer, Stenhouse, published in 1754 Annuities derived from the London Bills of Mortality for a period of twenty years, 1728-1747. The premiums at 3 per cent. corresponding to these annuities are given in the fifth column of the Table.

Finally James Dodson, author of *The Mathematical Repository*, a disciple of De Moivre (and great-grandfather it may be mentioned of Augustus de Morgan), having been declined admission to the Amicable Society because his age exceeded forty-five, in accordance with the rule already mentioned, projected a new Society on a more *equitable* plan, and framed tables of premiums for the use of this projected Society. Dying, however, in 1757, Dodson did not survive to see the successful establishment five years later, in 1762, of the Equitable Society which he had worked so hard to promote. The rates of premium adopted by that Society in 1762 were based on Dodson's calculations from the London Bills of Mortality from 1728 to 1750, a fact which the Society acknowledged some fifteen years after its establishment, when it made a grant of £300 to Dodson's children as recompense for the "Table of Lives" which their father had prepared for the Society. In such preparation, however, Dodson no doubt took full advantage of the researches of Simpson and probably also of Stenhouse. The last column of Table A shows the original Whole-Life Rates of the Equitable Society.

TABLE A.

ANNUAL PREMIUMS FOR A WHOLE-LIFE INSURANCE OF £100, DERIVED FROM DATA AVAILABLE PRIOR TO THE FORMATION OF THE EQUITABLE SOCIETY; TOGETHER WITH THE ORIGINAL RATES OF THAT SOCIETY.

Age.	Halley's Breslau Table, 1692. 6%.	De Moivre Hypothesis, 1725. 3%.	Simpson, 1742. London Bills. 10 years. 3%.	Stenhouse, 1754. London Bills. 20 years. 3%.	Equitable Socy. Original Rates, 1762.
(1)	(2)	(3)	(4)	(5)	(6)
20	£1 11 11	£2 4 6	£2 11 8	£2 12 9	£2 15 4
30	2 4 0	2 14 1	3 6 9	3 8 11	3 12 3
40	2 19 8	3 8 0	4 2 8	4 7 2	4 12 2
50	4 2 8	4 9 9	5 3 0	5 8 9	5 18 4
60	5 19 4	6 8 2	6 17 10	7 1 0	8 5 2

Table A proves the proposition that the failure to graduate rates for life insurances according to age prior to 1762, was not due to the want of vital statistics but to the failure of those practically engaged in such business to make themselves acquainted with them.

Another reason, possibly, why annuities developed so much in advance of insurances may be found in a consideration of the question which we actuaries allude to under the general term "Selection." Obviously the grantor of annuities would benefit if the nominees were inferior lives, but the reverse would happen in the case of insurances, as the risk of failure in the proper selection of the lives would fall to be borne by the office issuing the policies. It must not be forgotten that the science of medical selection of lives is of quite modern birth, and that therefore this risk would be by no means a nominal one. Strong have been the criticisms on the action of the Attorney-General of the day in rejecting the original application of the Equitable Society for a Charter, but I am not sure that those who make them are quite justified. It is necessary to look at matters from the attitude of those bygone times. The liability to pestilences of the plague or of small-pox, for example, which then existed, was well known to be such as might overthrow all calculations depending on averages; and, indeed, we find the constitution of the Equitable Society, as finally sanctioned, incorporating both power to make assessments on members and provision for deferring, till a more convenient season, payment of three-fourths of each claim in case of plague or contagious sickness occurring in London or parts adjacent (Deed of Settlement, Cl. 22).

At the outset also no person was eligible for membership at ordinary rates *unless he had had the small-pox*, a rule which was subsequently modified to admit those who had had the cow-pox but not small-pox, but with the provision that if such persons died of the small-pox then their policies should be void (Bye-Law 30, 1802), a provision which was not rescinded till 1823 (Bye-Law 45).

I have already mentioned Sir William Petty's estimate of the rate of mortality from the plague, and in further illustration I quote from our old friend Captain Graunt (4th Edition, p. 65):—

"There died Anno 1592, from March to December	25,886
Whereof of the Plague	11,503
Anno 1593	17,844
Whereof of the Plague	10,662
Christened in the said year	4,021
Anno 1603, within the same space of time, were Buried	37,294
Whereof of the Plague	30,561
An. 1625, within the same space	51,758
Whereof of the Plague	35,417
An. 1636, from April to Decemb.	23,359
Whereof of the Plague	10,400."

A close examination of these figures compared with the other tables of statistics given in the work, shows that the deaths recorded in the plague years from other causes than the plague were very much in excess of the average number of deaths in the years immediately preceding and following, and this notwithstanding the great efflux of people from the city during the height of the pestilence—a fact borne out by Graunt himself, who says that two-fifths of the people fled, and illustrated very graphically by Defoe in his *Journal of the Plague Year* 1665.

Graunt did not fail to notice this discrepancy in the Death Returns, and concluded, no doubt very justly (p. 69), "from whence we may probably suspect, that about ¼ part more died of the Plague than are returned for such." If we may believe Defoe on this point we learn the reason to have been:—

"And as people were very loth at first to have neighbours believe their houses were infected, so they gave money to procure, or otherwise procured the dead persons to be returned as dying of other Distempers; and this I know was practised afterwards in many places, I believe I might say in all places where the Distemper came, as will be seen by the vast increase of the Numbers placed in the Weekly Bills under other Articles of Diseases during the time of the Infection."

These quotations will show that at the time the Equitable was projected there was need not only for the greatest care in forming life-long contracts of an entirely novel character, but also absolute necessity for making provision for the frightful havoc of plague and pestilence of which people then living were justified in expecting the periodical recurrence. We show lack of historic

sympathy by hastily condemning the practices of the past, which cannot fairly be criticised in the light of the present. On the other hand, I regard as somewhat belated another high-class Mutual Life Office, which not until the year of grace 1895 removed from its deed of settlement a similar provision for suspending payment of claims.

Reverting to the Equitable, we learn that the original rates of that Society, which I have given in Table A, were in 1764 increased by 1s. 6d. at each age. In 1776 the rates were reduced by one-tenth, and in 1781 the basis was altered to the Northampton Table at 3 per cent. with an addition of 15 per cent. In 1786 the 15 per cent. loading was struck off, and the pure rates adopted.

The pure Northampton 3 per cent. Table thus adopted in 1786 as a basis for Office annual premiums has a remarkable history. Francis Baily, writing in 1810, mentions that *all* the London Offices then charged these rates. Babbage, in 1826, records that exactly one-half of the thirty Companies then existing still charged the Northampton 3 per cent. pure rates. The well-known volume of the Library of Useful Knowledge, *On the Value of Annuities and Reversionary Payments*, by David Jones, published in 1844, contains a table of annual premiums for whole-life participating insurances charged by the Companies at that date. From this I find that of sixty-five Companies twelve still charged the Northampton 3 per cent. pure rates: while, finally, one Office down to the present day continues the old scale, that Office being the historic Society which first introduced it, regarding which, if genuine admiration did not veto the inclination to be sarcastic, one might say that for over one hundred years, like others of the *ancien noblesse*, it has forgotten nothing and learned nothing.

The first deviation from the Northampton 3 per cent. standard, universal in London when Francis Baily wrote, was made by Joshua Milne, the author of the Carlisle Table, who adopted for his Company the pure premiums from his own Table at 4 per cent. with a loading of 40 per cent.; and his friend Benjamin Gompertz did the same for the Company of which he was the Actuary. A lower table of premiums was subsequently issued by another well-known Office, framed by loading with 30 per cent. the pure premiums derived at 4 per cent. from a special Table deduced from a combination of the Carlisle, Davies's Equitable, and the Government Annuitants. This Office was again undersold by another, which has now ceased to exist (the Argus), which added 20 per cent. only instead of 30 per cent. to the same table, and thereby brought out the lowest rates of any London Office. [For the foregoing particulars of the earliest deviation from the Northampton 3 per cent. rates I am indebted to Mr. Arthur H. Bailey.]

The original rates of the oldest of the Scottish Life Offices were, I find, based on the Northampton 4 per cent. with a loading of $2\frac{1}{2}$ per cent. But it is unnecessary to go further in examining particular instances, especially as there is little nowadays to interest us as a scientific Society in tables of premiums (of which there were many) deduced, or purporting to be deduced, from private tables, not one of which was of any authority; nor in those constructed on a system of adding a percentage loading varying at different ages, not on account of any theoretical considerations, but simply with a view to competition with some rival Office. Both the Northampton and the Carlisle Tables, however, have enduring interests in the historical development of Office premiums.

In the following Table B, I give (columns 2 and 3) annual premiums according to the Northampton 3 per cent. pure, and Carlisle 4 per cent. loaded 40 per cent., and for the purpose of comparison I add (column 4) the average With-Profit Rates of the present day, taken from the important paper by Mr. G. J. Lidstone, in a recent number of the *Journal of the Institute of Actuaries* (vol. xxxii. page 84). It will be observed that the Northampton 3 per cent. Table gives a high rate of premium under age fifty, and an unduly low one above that age. On the other hand, Milne's 4 per cent. Carlisle premiums, as loaded by him, come out too high at the older ages. In the last column of the Table I give 3 per cent. Carlisle premiums loaded 25 per cent., to show what a good approximation to modern views can be obtained on this old-fashioned basis.

TABLE B.

ANNUAL PREMIUMS FOR A WHOLE-LIFE INSURANCE OF £100.

Age.	Northampton 3% Pure.	Carlisle 4%. Loaded 40%.	Average With-Profit Rates. Lidstone, 1895.	Carlisle 3%. Loaded 25%.
(1)	(2)	(3)	(4)	(5)
20	£2 3 7	£1 16 11	£1 19 0	£1 17 4
30	2 13 5	2 9 2	2 9 0	2 8 10
40	3 7 11	3 6 7	3 4 5	3 5 0
50	4 10 8	4 14 4	4 11 0	4 10 6
60	6 7 4	7 14 11	6 18 0	7 4 9

How satisfactory it is that Offices in the early days of life insurance should have happened to charge premiums framed on a table like the Northampton, which gives too high rates at the younger ages (at which the majority of persons insure), and too low rates only at those higher ages where there are few or no

entrants! If the table adopted had, like the H^m, erred in the other direction, it would have caused the pioneer Offices to charge too little to the vast mass of their constituents, thereby creating a deficiency which the premiums received from the few entrants at the higher ages would have been quite inadequate to replace.

I turn now to a consideration of the rates of premium for non-profit insurances, and submit the following Table to illustrate such rates:—

TABLE C.

ANNUAL PREMIUMS FOR A WHOLE-LIFE INSURANCE OF £100.

Age.	Dr. Sprague's Non-profit Rates.	Mr. Rothery's Non-profit Rates.	Carlisle 3°/₀. Loaded 7½°/₀.	Dr. Sprague's Select 5°/₀. Loaded 5°/₀.
(1)	(2)	(3)	(4)	(5)
20	£1 13 9	£1 12 8	£1 12 2	£1 12 10
30	2 0 9	1 19 10	2 2 0	2 0 5
40	2 14 10	2 14 3	2 15 11	2 14 8
50	3 19 3	3 19 4	3 17 10	3 18 10
60	6 3 10	6 5 3	6 4 6	6 2 4

The paper by Dr. Sprague (*J. I. A.* vol. xxii. page 396), in which he describes his process for constructing the above rates from his own Select Mortality Tables at 4 per cent. interest by the following formula:—

$$P_x^{\text{N.P.}} = 1{\cdot}075\left(\varpi_{[x]} + \frac{{\cdot}01}{1+\alpha_{[x]}} + {\cdot}00125\right) = 1{\cdot}086\varpi_{[x]} + {\cdot}00175$$

is well known. Judging by the influence which it has had it may well be taken as a standard. Mr. Rothery's rates were constructed from the same data, with the formula modified thus (*J. I. A.* xxx. 136):—

$$P_x^{\text{N.P.}} = \left\{\varpi_{[x]} + \frac{{\cdot}02 + {\cdot}05\,P_x^{\text{N.P.}}}{1+\alpha_{[x]}}\right\}\frac{1}{{\cdot}92} = \frac{A_{[x]} + {\cdot}02}{{\cdot}92\,(1+\alpha_{[x]}) - {\cdot}05}.$$

When we consider the great mortality investigation of the twenty representative Offices, the searching analysis of statistical details, and the adjustment of the various practical considerations which go to make up Dr. Sprague's table of premiums, is it not extraordinary that the old Carlisle Table at 3 per cent. with 7½ per cent. loading should give such a close approximation? This result is curious and interesting, rather than practically useful; but it

may be useful on occasions to know that Dr. Sprague's rates are roughly approximated to by the pure premiums of his own select tables at 3 per cent. with a simple loading of 5 per cent., as is shown by the last column of the Table; for by such a generalisation we learn to what extent the profitable working of non-participating business in the future at such rates depends on the rate of interest earned above 3 per cent.

Mr. Rothery, it will be observed, brings out rates slightly lower at the younger insuring ages than Dr. Sprague, and a good deal might doubtless be said in favour of his modification of Dr. Sprague's method, in the direction of making a fuller provision for initial expenses; but it must be remembered that the rate of interest assumed in each case is 4 per cent., and that if allowance were now made for the fall which is taking place in the rate of interest, the premiums at the younger ages would be increased, relatively, to a greater extent than those at the older ages. For this reason, and until an all-round increase in the premiums may be resolved upon, I prefer Dr. Sprague's graduation to Mr. Rothery's.

In this connection it is interesting perhaps to state, in shillings and pence, what alteration a fall of $\frac{1}{2}$ per cent. in the rate of interest from 4 per cent. to $3\frac{1}{2}$ per cent. really makes in the net annual premiums. At age 20 the increase is 1s. 9d., at age 30 2s., at age 40 2s. 3d., at age 50 2s. 6d., and at age 60 2s. 8d. I am not raising here the practical question, whether without-profit rates should or should not be increased; but when that question is raised careful consideration must be given to the point whether the improvement in the value of selected lives which has taken place in the last thirty years, may not be sufficient to practically neutralise the fall in interest.

My next Table (D) is not, I think, without interest. I take Dr. Sprague's table of office premiums without profits for each quinquennial age from 15 to 70 inclusive, and I state in actual cash the loading which that table shows on the Select Table at 4 per cent. on which it is based, and also on the Select at $3\frac{1}{2}$ per cent., and on the H^m Table at 4, at $3\frac{1}{2}$, and at 3 per cent. What I wish to show is that when the H^m pure premiums are used instead of the Select, the tendency of the loading is to become a constant quantity (not a percentage) right down the Table. This is particularly noticeable at $3\frac{1}{2}$ per cent., where the loading at age 15 is 6s. 8d. and at 70 6s. 6d., the average for the whole column being 6s. 2d., and the greatest deviations from the average being +1s. and −11d.

Putting the same thing in another way, we can say that if we load the H^m $3\frac{1}{2}$ per cent. pure premiums with 6s. at each age from 25 to 60, the deviations from Dr. Sprague's standard table will

be almost inappreciable, being at 25 + 2d., and + 8d., + 9d., + 6d., + 3d., + 1d., − 4d., and − 10d. respectively at the successive quinquennial ages up to 60.

It is hardly appropriate that I should to-night carry this line of investigation further; but if we get clearly into our minds that a certain fixed sum of, say, 6s. or 6s. 8d. per £100 for practically all ages, at 3½ per cent., represents a fair loading on H^{m} *ordinary pure premiums*, then we may be able to adjust loadings in other cases in a somewhat similar manner. With the Select Table we of course find a steady and consistent increase in the loading: thus, when the interest is 4 per cent., from 5s. 7d. at 15, to 19s. 6d. at 70; and when at 3½ per cent., from 4s. at 15, to 16s. 7d. at 70.

TABLE D.

Age.	Dr. Sprague's Office Non-profit Premiums.	LOADING ON PURE PREMIUMS.				
		Select 4°/₀.	Select 3½°/₀.	Hm 4°/₀.	Hm 3½°/₀.	Hm 3°/₀.
(1)	(2)	(3)	(4)	(5)	(6)	(7)
	£ s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
15	1 9 4	5 7	4 0	8 3	6 8	4 10
20	1 13 9	5 11	4 4	8 10	7 2	5 3
25	1 16 3	6 1	4 3	7 8	5 10	3 9
30	2 0 9	6 6	4 6	7 4	5 4	3 2
35	2 6 9	6 11	4 9	7 4	5 3	2 11
40	2 14 10	7 7	5 3	7 9	5 6	3 1
45	3 5 5	8 5	5 11	8 1	5 9	3 2
50	3 19 3	9 6	6 11	8 5	5 11	3 3
55	4 18 1	10 11	8 3	8 11	6 4	3 7
60	6 3 10	13 0	10 3	9 6	6 10	4 1
65	7 18 5	15 8	12 9	9 10	7 2	4 4
70	10 6 7	19 6	16 7	9 3	6 6	3 7

The length to which this review has already extended prevents my doing more than briefly touching upon allied branches of the inquiry which, had time permitted, I should have dealt with in some detail: for instance, concerning the rate of interest in its bearing upon the adjustment of premiums. On this subject I would point out that interest, although an important element, is not an essential factor in life assurance; that life assurance would go on just as well if money yielded no interest whatever. In Table C we have seen that existing non-participating premiums are roughly represented by the Carlisle Table at 3 per cent. with 7½ per cent. loading. Now, if we eliminate the element of

interest from this Table and retain the same loading, the annual premiums become as follows:—

TABLE E.

Age.	Carlisle 3°/₀. Loaded 7½°/₀.	Carlisle (no interest). Loaded 7½°/₀.
20	£1 12 2	£2 11 3
30	2 2 0	3 1 9
40	2 15 11	3 16 6
50	3 17 10	4 19 6
60	6 4 6	7 4 11

Doubtless, a little larger loading than 7½ per cent. would be needed if money yielded no interest; but it is obvious that the premium rates would be by no means prohibitive. Furthermore, if capital ceased to produce any return, the only way in which a prudent man could provide for himself after his retirement from business would be by the purchase of an annuity; and similarly, that also would be the only prudent way in which he could make provision for his widow after his decease.

Even as it is, if the fall in interest which has been going on so long should proceed much farther, it is safe to prophesy that it will lead to a huge development of the annuity business of Life Offices. Already signs are not wanting of a tendency in that direction.

But let us not leap to conclusions too fast. We all know that huge profits from investments were made by Life Offices in the early days of Assurance, and particularly by the Equitable; but these profits arose from successful speculations (if I may use the word) in the funds, and not from the large return on their fixed loans. In 1828 we find it debated at the General Meeting of the Equitable whether their rate of interest for Mortgages might not be reduced from 4 per cent. to 3½ per cent., a proposal which was opposed on the ground that it would affect so many existing loans.

It is worth recalling that British 3 per cents. touched 106 in the year 1737; while sixty years later, in 1797, they fell to 52. In several old books of the last century which I have had to consult, I have found that authors have thought it well to calculate annuity rates at 2½ per cent., while it was not until the last year or two that the same calculations were applied to the Institute of Actuaries' observations. Causes are at work around us, patent to every one, which in certain eventualities (unfortunately well

within the range of possibility) may lead to a sharp rise in interest rates. Meantime, that a steady fall is going on in the interest on practically all the classes of investment to which Insurance Companies restrict themselves cannot be denied; and this fall would be even more apparent were it not that the majority of Offices very prudently abstain from writing up their investments, so that they continue to yield to them a rate of interest which their full market value would not represent.

To complete my sketch I had also intended to deal with the historical aspect of the valuation of premiums—starting with the original condition that, gross premiums and pure premiums being identical, the actual premiums receivable were always valued; but I find it impossible even to indicate the landmarks of progress, still less to draw a graphical curve through those landmarks and produce it into the future so as to determine whither we are tending. On some other occasion I may be able to deal with the matter if I get an opportunity, with an audience not already wearied, as I am afraid mine on the present occasion must be, with the length of what has preceded.

Gentlemen, in closing I renew my thanks to you for placing me in this Chair; and I look forward with confidence to the proceedings of the Society at its ordinary meetings during the session now inaugurated, being such as to maintain and extend the high reputation which the Actuarial Society of Edinburgh has attained among kindred institutions.

APPENDIX

AN EARLY CHAPTER IN THE HISTORY OF OLD AGE PENSIONS

The following is an abridgment of the description given by Baron Maseres, referred to on pages 423 and 424 of the text:—

"CONCERNING THE BILL FOR ESTABLISHING CERTAIN REMOTE LIFE-ANNUITIES IN PARISHES, WHICH PASSED THE HOUSE OF COMMONS IN THE SPRING OF THE YEAR 1773.

"The Bill was brought into the House of Commons by Mr. Dowdeswell, and seconded by Mr. George Rice, the member for Carmarthenshire, and supported by Sir George Savile, Sir Richard Sutton, Mr. Edmund Burke, Mr. Cornwall, Mr. Jackson, counsel to the Board of Trade, Mr. Thomas Townshend, Junr., and many other members of parliament of eminent abilities. And it passed in that House, upon a division, after a debate, by a majority of about two votes to one of all the members present. But it was thrown out by the House of Lords. As great pains had been taken in the framing this Bill by Mr. Dowdeswell (who brought it into the House), Mr. Rice, and Sir George Savile, and many other gentlemen; who had often met together for several hours at a time, at Sir George Savile's house in Leicester Square, to consider the several clauses of it; it may not be amiss to give my readers the following general account of it.

"The design of this Bill was to encourage the lower ranks of people to industry and frugality, by laying before them a safe and easy method of employing some part of the money they could save out of their wages, or daily earnings, in a manner that would be most strikingly for their benefit. It was observed that their wanting opportunities of this kind was probably one very principal cause of their neglecting so obvious a piece of prudence. . . . To effect these useful purposes the Bill provided as follows:—

"*First.*—That in every parish in England or Wales, in which there were two churchwardens and two or more overseers of the poor, or one churchwarden and three or more overseers of the poor, that is, four or more parish officers intrusted with the care of the poor, it should be lawful for the body of the rateable inhabitants of such parish, that is, of those inhabitants who contributed to the poor's-rate, to grant life-annuities, payable every quarter of a year, to such of the inhabitants thereof as should be willing to purchase them, at the prices set down in the tables annexed to the bill, which were computed upon a supposition that the interest of money was only 3 per cent.

"*Secondly.*—That the money received from the purchasers of these annuities should be vested in the 3 per cent. bank-annuities in the name of the parish which had granted it; and the dividends duely received by them every half-year, and employed in the purchase of new stock, so as to be improved at compound interest, to the end that it may be able to answer the annuities bought with it when they shall become due.

"*Thirdly.*—That for the aforesaid purposes of granting these life-annuities, and receiving the money paid for them, and holding the stock

purchased with it in the bank-annuities, and the other purposes of this bill, the said rateable inhabitants of every such parish should be made a body politick and corporate, and have a common seal.

"*Fourthly.*—That, if the parish fund in the 3 per cent. bank-annuities, should, by the mismanagement of it, or from any other cause, prove insufficient to supply the life-annuities charged upon it, the poor's-rate should be made a collateral security to the poor purchasers of these annuities for the payment of them, and should be increased to such a degree as should be sufficient to make good the deficiencies.

"*Fifthly.*—That no such annuity should be granted to any one person of more than £20 sterling a year.

"*Sixthly.*—That no such annuity should be granted to any of the inhabitants of a parish but such as were legally settled in it, or had a right to be relieved by it in case they became poor and helpless.

"*Seventhly.*—That no such annuity granted to any man should commence before he was compleatly fifty years of age; nor to any woman before she was compleatly thirty-five years of age.

"*Eighthly.*—That no sum less than five pounds should be received by the managers of these annuities as the price of any such annuity.

"*Ninthly.*—That the ministers, and churchwardens, and overseers of the poor, should be the managers of these annuities for the whole body politick and corporate of the rateable inhabitants of the parish, and should receive the money from the purchasers of them, and vest it in the 3 per cent. bank-annuities, and receive the dividends, and employ them in the purchase of fresh stock, and pay the annuities to the purchasers when they became due: and that for the transacting of the said business at the Bank they should give a power of attorney to some person residing in London.

"*Tenthly.*—That nevertheless the said managers should not have the power of granting any of these annuities without the consent of the rateable inhabitants of the parish, who should be assembled in vestry for that purpose after public notice of such intended meeting given in the parish church on two Sundays immediately after divine service. And in these meetings of the parishioners it should be necessary not only that the majority of them in number should consent to the granting the annuity proposed, but that those who so consented should have paid more than half the last poor's-rate paid by all the rateable inhabitants so assembled.

"This restraint was intended to prevent the renters of small tenements in the parish from involving the parish in the contingent burthen on the poor's-rate that might arise from these annuities, against the will of the more substantial inhabitants.

"And it was further provided that no such annuity should be granted unless there were present at the meeting, in which it was granted, at least twelve of the said rateable inhabitants of the parish, except in parishes where the whole number of rateable inhabitants was less than nineteen; and that in that case it should be necessary that at least two third parts of the whole number of inhabitants should be present at it.

"And, in the eleventh and last place, it was provided that the purchasers of these annuities should not be permitted to alienate them without first making an offer of them to the parish at the price they were worth at the time of such offer, according to the tables annexed to the bill, or at some lower price: and that such of them as should, at the time of purchasing them, consent to a clause that should declare them to be absolutely unalienable, should, in consequence of such consent, be incapable of alienating them at all.

"The reason of this restraint upon the alienation of these annuities was to guard the poor owners of them against their own folly and weakness, by

making it impossible for them to sell their annuities for a small part of their true value, over a pot of ale, and without a proper degree of deliberation.

"The reason of computing the values of these life-annuities upon the supposition of so low a rate of interest as 3 per cent. was to make the fund arising from the money paid for them be amply sufficient to answer them when they should become due; so that it should be almost impossible, without great negligence in the management of this fund, that there should ever be a necessity of having recourse to an augmentation of the poor's-rate to make good its deficiencies, Yet even at this low rate of interest the purchasers of these annuities would usually get 9.or 10 per cent. for their money, if they purchased them only five years before the time of their commencement; and 30 or 40 per cent. if they would be content to wait for them 25 or 30 years; which men under 30 years of age might do without any inconvenience. And the hope of this, it was presumed, might be a sufficient inducement to them to employ some part of their money in this way, and to be diligent in their callings, and frugal in their expenses with that view.

". . . But that the experiment might be as little hazardous as possible, and parishes might not be involved by it against their wills in the danger of these remote incumbrances, the bill was made intirely optional, and the rateable inhabitants of every parish were left at liberty to grant or not grant any of these annuities, as they should think fit, and even, after they had granted some such, to desist from granting any more. . . .

"There was, however, a very ingenious and subtle observation made upon this answer, and in support of the foregoing objection, by a noble lord of distinguished abilities, and who formerly filled the highest station in the law with great reputation. This was 'that the option above mentioned ' was not given to the right persons, or to those who were most likely to be ' affected by the burthens which the granting these annuities might here- ' after bring upon the parishes. For that the option was given to the ' rateable inhabitants of the parish, who were, for the most part, only ' renters of the lands they occupied; whereas the burthen upon the poor's- ' rate arising from the supposed deficiency of the annuity fund was not ' likely to be felt till many years after the granting of the annuities, when ' the leases of the renters who had voted for the granting them, would be ' at an end, or, if they were renewed, would have been renewed at a lower ' rent than before, in consideration of the approaching and probable increase ' of the poor's-rate, arising from the said supposed deficiency, which would ' be an injury to the freeholders of the land who were possessed of the ' permanent property of it, and that therefore the consent of the said free- ' holders ought to be obtained to every act by which the lands of the parish ' might be exposed to the danger of such a future burthen.'

"This observation seems to be somewhat refined; but will admit, as I conceive, of the following answer. The rateable inhabitants of parishes are of the three following sorts; either owners of the houses and lands which they occupy; or renters of them under long leases for twenty-one years, or for three lives, and often with a right of renewal; or renters of them under short leases, for one or two years, or merely at the will of the owners, without any leases. If they are of the first sort, they are the very persons in whom the noble author of the observation thinks the option of granting, or refusing to grant, these life-annuities ought to have been vested. If they are of the second sort—that is, renters of the lands they occupy, under long leases, they then are more likely to feel the burthen brought upon the parish by the supposed augmentation of the poor's-rate than the freeholder or owner of the reversion, and therefore are fitter than he is, according to the principle of the observation, to be trusted with the

power of bringing this contingent burthen upon the parish. And, lastly, if they are renters of the lands they occupy under short leases or at will, which is the case supposed in the objection, they are in consequence of the precariousness of such a tenure, so much under the influence of their landlord, that, if he should but signify his pleasure to them, by his steward or by a letter, that he does not chuse that any of these annuities should be granted in the parish, lest his lands should be exposed to such a future increase of the poor's-rate, they will be sure to give their votes against them. So that in all these cases the interests of the persons who are most likely to be affected by the apprehended burthen on the poor's-rate, are sufficiently protected by the provision that vests this option in the rateable inhabitants of the parish. And besides, experience shews that the inhabitants of parishes in general, as well those who rent lands and houses by the year, or at will, as those who have more permanent interests in them, are wonderfully averse to everything that has even a remote tendency to increase the poor's-rate. And consequently there is no reason to apprehend that they would consent to grant any of these parish annuities whenever there was the smallest danger of their being ill-managed, and producing, in consequence thereof, an augmentation of the poor's-rate to make good the deficiencies of their proper fund.

"Some other objections have also been made to this bill, which have been answered in a pamphlet, intitled, 'Considerations on the Bill now depending 'in the House of Commons for enabling parishes to grant life-annuities to 'poor persons, upon purchase, in certain circumstances, and under certain 'restrictions; being an appendix to the pamphlet intitled "A proposal for '"establishing life-annuities in parishes for the benefit of the industrious '"poor." Sold by B. White, in Fleet Street, 1773,' to which I refer the reader.

"I have this further to say in favour of the foregoing proposal (which I hope will one day or other be again brought into Parliament, and with better success); that it has been carefully examined, and fully approved, by the learned and publick-spirited Dr. Price, of Newington Green, near Islington, the author of the *Observations on reversionary payments* above mentioned; and by the very acute and judicious Dr. Benjamin Franklyn, and by Mr. Wedderburn, who at the time of this bill's passing the House of Commons, was his Majesty's sollicitor-general, and now (in August 1780), is lord chief justice of the court of Common Pleas and baron Loughborough."

The Rates scheduled to the Bill may be judged of by the following illustration:—

TABLE showing the Present Payment required to purchase an ANNUITY OF £1, payable quarterly, to be entered on at the undermentioned ages.

Age at purchase.	Age 50.		Age 60.		Age 70.	
	London.	Country.	London.	Country.	London.	Country.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
19¾ to 20½,	2 3 0	2 18 8	0 16 8	1 4 6	0 5 0	0 7 4
29¾ to 30½,	3 9 2	4 13 3	1 6 10	1 19 1	0 8 1	0 11 10
39¾ to 40½,	6 2 0	7 9 8	2 7 3	3 2 5	0 14 3	0 18 10
49¾ to 50½,	11 15 6	12 17 8	4 11 9	5 7 9	1 7 8	1 12 7
59¾ to 60½,	.....	.....	9 11 6	10 2 0	2 18 0	3 1 3

APPENDIX.

LIST OF PAPERS READ BEFORE THE SOCIETY DURING THE SESSIONS 1891-1896.

Papers marked with an asterisk (*) have been printed.

Session 1891-92.

The Bank of England, ... W. SMITH NICOL.

Life Assurance, the Field, the Labourers, the Harvest, A. H. MORGAN.

On the Practice of Life Offices with regard to Climate Risks, D. M. CARMENT.

Session 1892-93.

*Administration—Notes by an Old Hand, (Transactions, vol. iii. No. 2.) J. M. M'CANDLISH.

*Probability and Chance, and their connection with the Business of Insurance, ... T. B. SPRAGUE. (Transactions, vol. iii. No. 4.)

An Investigation of 524 Consumptive Life Assurance Claims, Dr. CLAUD MUIRHEAD.

On the Inverse Rule in the Theory of Probability, JOHN GOVAN.

Remuneration of Life Assurance Agents, . . D. Y. MILLS.

Session 1893-94.

*The Recent Australian Bank Failures, . . . GEORGE M. LOW. (Transactions, vol. iii. No. 3.)

*Misrepresentation and Concealment as affecting Policies of Insurance, (Transactions, vol. iii. No. 5.) WILLIAM HARVEY.

Appendix

*Life Assurance in Canada, ... FRANK SANDERSON.
(Transactions, vol. iii. No. 7.)

*The Present Position of the Silver Question, Prof. J. SHIELD NICHOLSON.
(Transactions, vol. iii. No. 6.)

On a Method of Valuation by Book-keeping, . W. ROBERTSON.

On Simple Interest, ... A. SHENNAN HUME.

Session 1894-95.

*Notes on Widows' Funds, ... DAVID DEUCHAR.
(Transactions, vol. iii. No. 8.)

On the Mortality of Married Females of the Peerage, J. R. HART.

*Note on the Rate of Mortality in Sierra Leone, . A. E. SPRAGUE.
(Transactions, vol. iii. No. 12.)

*Life Office Investments. Retrospect and Outlook, DAVID PAULIN.
(Transactions, vol. iii. No. 9.)

Valuation of Sickness Allowances, . . . W. G. WALTON.

On Methods of Calculating Expense Ratios, . . W. G. WALTON.

The following Lectures were delivered under the auspices of the Faculty of Actuaries during the Session 1894-95, and, at the suggestion of the Council of the Faculty, they have been printed as No. 10 of vol. iii. of the Transactions of the Actuarial Society of Edinburgh.

Lecture I. Conditions in Life Policies.
,, II. Policies of Insurance as Securities and in Trust.
,, III. Accident Insurance.
,, IV. Conditions in Fire Policies. WILLIAM HARVEY.

Session 1895-96.

*The Evolution of Premium Rates, a Chapter in the History of Life Insurance, ... JAMES SORLEY.
(Transactions, vol. iii. No. 14.)

*A Commentary upon the Married Women's Policies of Assurance (Scotland) Act, 1880, ... A. H. B. CONSTABLE.
(Transactions, vol. iii. No. 11.)

*An Investigation as to how far Life Insurance is of a Provident Nature as benefiting the Assured and his Family; and how far it is of a merely Financial Character, as benefiting his Creditors and Assignees,
(Transactions, vol. iii. No. 12.) A. E. SPRAGUE.

*Note on Select Mortality Tables, ... J. R. HART.
(Transactions, vol. iii. No. 13.)